MATERIALS ANALYTICAL SERVICES MON 20-AUG-90 16:43

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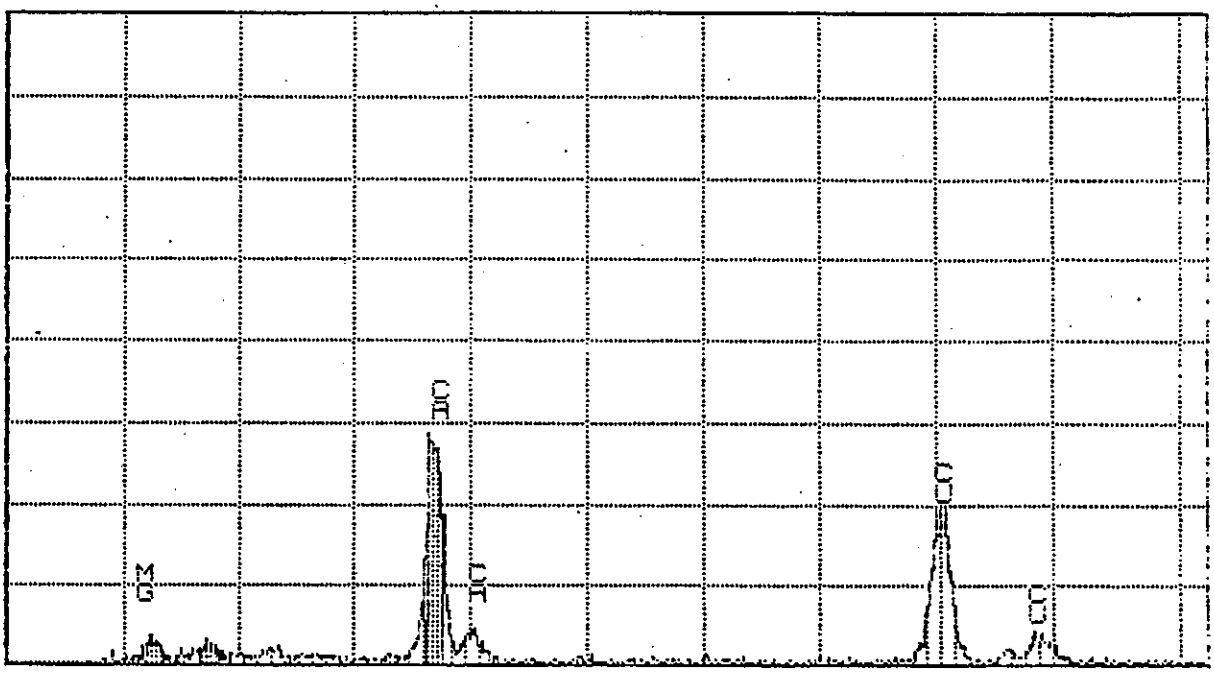

0.000 VFS = 256 10.240

11 M2468-9, CALCITE

MATERIALS ANALYTICAL SERVICES

ADDITIONAL BULK ANALYSIS

Sample # M12468-9 Analyst S. T. P.

Date 08/09/90

ACID DISSOLUTION

(1)	Petri dish plus sample:	9.2289 g
(2)	Petri dish minus sample:	8.2722 g
(3)	Original sample weight:	0.9567 g
(4)	Filter weight:	0.0583 g
(5)	Clean petri dish weight:	7.3169 g
(6)	Final sample weight plus filter and petri dish:	7.7735 g
(7)	Final sample wt:((6) -[(4) + (5)])	0.3983 g
(8)	Percent residue wt:((7)/(3) x 100)	41.6 %
(9)	Amount in solution:(100 - (8))	58.4 %

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MATERIALS ANALYTICAL SERVICES

ADDITIONAL BULK ANALYSIS

STARCH VERIFICATION

Sample # 12468-9 Analyst W.B. Eyl

Date 8/17/94

1) Sample Analyzed before/after acid dissolutions

Starch observed

(no) ✓

yes _____

Iodine test
(ceiling tile only)

positive _____

negative _____

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MATERIALS ANALYTICAL SERVICES, INC.

BULK ASBESTOS SHEET

Project # - Spl #: M2469-10 Date: 7/17/90

Project Name: PRD / Southdale office Analyst: J. Mod

Sample Identification: 6850 France #10 2nd Floor

Gross Visual Description: Beige with fine f. bas, gold flakes and books bound in a fine grained matrix

Optical Data for Asbestos Identification

Morphology	wavy			
Pleochroism	no			
Refractive Index	1.55/1.54			
Sign of Elongation	+			
Extinction	0			
Birefringence	low			
Melt	no			
Fiber Name	Chrysotile			

ASBESTOS MINERALS:	Est. Vol. %
Chrysotile	12
Amosite	
Crocidolite	
Tremolite/Actinolite	
Anthophyllite	

OTHER FIBROUS COMPONENTS:

Mineral/Rock wool	
Fibrous glass	
Cellulose	
Synthetic	
Other	

NON-FIBROUS COMPONENTS:

Perlite	
Vermiculite	35
Other	
Binders	53

Abundant Gypsum, fine grained aggregate

EFFERVESCENCE: None - Walk in Isolated area

COMMENTS:

NSD

MATERIALS ANALYTICAL SERVICES, INC.

BULK ASBESTOS SHEET

Project # - Spl #: M2468-11 Date: 7/17/96

Project Name: PRU / Southdale office Analyst: J. Mckie

Sample Identification: 6800 France # 11 ~~1st Floor~~ 1st Floor

Gross Visual Description: Beige with fine f. bers, gold flakes and rocks bound in a fine grained matrix

Optical Data for Asbestos Identification

Morphology	wavy		
Pleochroism	NO		
Refractive Index	1.55/1.54		
Sign of Elongation	+		
Extinction			
Birefringence	low		
Melt	NO		
Fiber Name	Chrysotile		

ASBESTOS MINERALS: **Est. Vol. %**

Chrysotile	12
Amosite	
Crocidolite	
Tremolite/Actinolite	
Anthophyllite	

OTHER FIBROUS COMPONENTS:

Mineral/Rock wool	
Fibrous glass	
Cellulose	
Synthetic	
Other	

NON-FIBROUS COMPONENTS:

Perlite	
Vermiculite	35
Other	
Binders	53

Abundant Gypsum, fine grained aggregate

EFFERVESCENCE: none - weak in isolated grs

COMMENTS:

WBO

MATERIALS ANALYTICAL SERVICES, INC.

BULK ASBESTOS SHEET

Project # - Spl #: M2468-12 Date: 7/17/90

Project Name: PRU / Southdale office Analyst: [signature]

Sample Identification: 6800 France #12 1st Floor

Gross Visual Description: Beige with fine fibers, gold flakes and books bound in a fine grained matrix

Optical Data for Asbestos Identification

Morphology	Wavy		
Pleochroism	ND		
Refractive Index	1.55/1.54		
Sign of Elongation	+		
Extinction	0		
Birefringence	low		
Melt	ND		
Fiber Name	Chrysotile		

ASBESTOS MINERALS: **Est. Vol. %**

Chrysotile	12
Amosite	
Crocidolite	
Tremolite/Actinolite	
Anthophyllite	

OTHER FIBROUS COMPONENTS:

Mineral/Rock wool	
Fibrous glass	
Cellulose	
Synthetic	
Other	

NON-FIBROUS COMPONENTS:

Perlite	
Vermiculite	35
Other	
Binders	53

Abundant Gypsum, fine grained aggregate

EFFERVESCENCE: None - Walk in Isolated areas

COMMENTS: NSD

MATERIALS ANALYTICAL SERVICES, INC.

BULK ASBESTOS SHEET

Project # - Spl #: M2468-13 Date: 7/18/90

Project Name: PAUL Southdale office Analyst: J McKim

Sample Identification: C800 France # 13 Basement

Gross Visual Description: Beige with fine fibers, gold flakes and books bound in a fine grained matrix

Optical Data for Asbestos Identification

Morphology	wavy		
Pleochroism	no		
Refractive Index	1.55/1.54		
Sign of Elongation	+		
Extinction	0		
Birefringence	low		
Melt	no		
Fiber Name	Chrysotile		

ASBESTOS MINERALS: **Est. Vol. %**

Chrysotile 12
Amosite
Crocidolite
Tremolite/Actinolite
Anthophyllite

OTHER FIBROUS COMPONENTS:

Mineral/Rock wool
Fibrous glass
Cellulose
Synthetic
Other

NON-FIBROUS COMPONENTS:

Perlite
Vermiculite 35
Other

Binders 53

Abundant Gypsum, fine grained aggregate

EFFERVESCENCE: none- weak in isolated areas

COMMENTS:

NSD

MATERIALS ANALYTICAL SERVICES, INC.

BULK ASBESTOS SHEET

Project # - Spl #: M2468-14 Date: 2/18/90

Project Name: PRU / Southdale office Analyst: J McGuire

Sample Identification: 6800 France #14 Parking Garage

Gross Visual Description: Beige with fine fibers, gold flakes and books bound in a fine grained matrix

Optical Data for Asbestos Identification

Morphology	wavy			
Pleochroism	no			
Refractive Index	1.55/1.54			
Sign of Elongation	+			
Extinction	0			
Birefringence	low			
Melt	no			
Fiber Name	Chrysotile			

ASBESTOS MINERALS:	Est. Vol. %
Chrysotile	12
Amosite	
Crocidolite	
Tremolite/Actinolite	
Anthophyllite	

OTHER FIBROUS COMPONENTS:

Mineral/Rock wool	
Fibrous glass	
Cellulose	
Synthetic	
Other	

NON-FIBROUS COMPONENTS:

Perlite	
Vermiculite	35
Other	
Binders	53

Abundant Gypsum, fine grained aggregate

EFFERVESCENCE: None - weak in Isolated areas

COMMENTS:

NSD

PIS 00111070

MATERIALS ANALYTICAL SERVICES, INC.
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404/448-3200

TEM ANALYSIS: BULK ANALYSIS

PROJECT: PRUDENTIAL: SOUTHDALE OFFICE COMPLEX 120.61
SAMPLE NUMBER: M2468-14
SAMPLE ID: #14 PARKING GARAGE ABOVE STALL #40

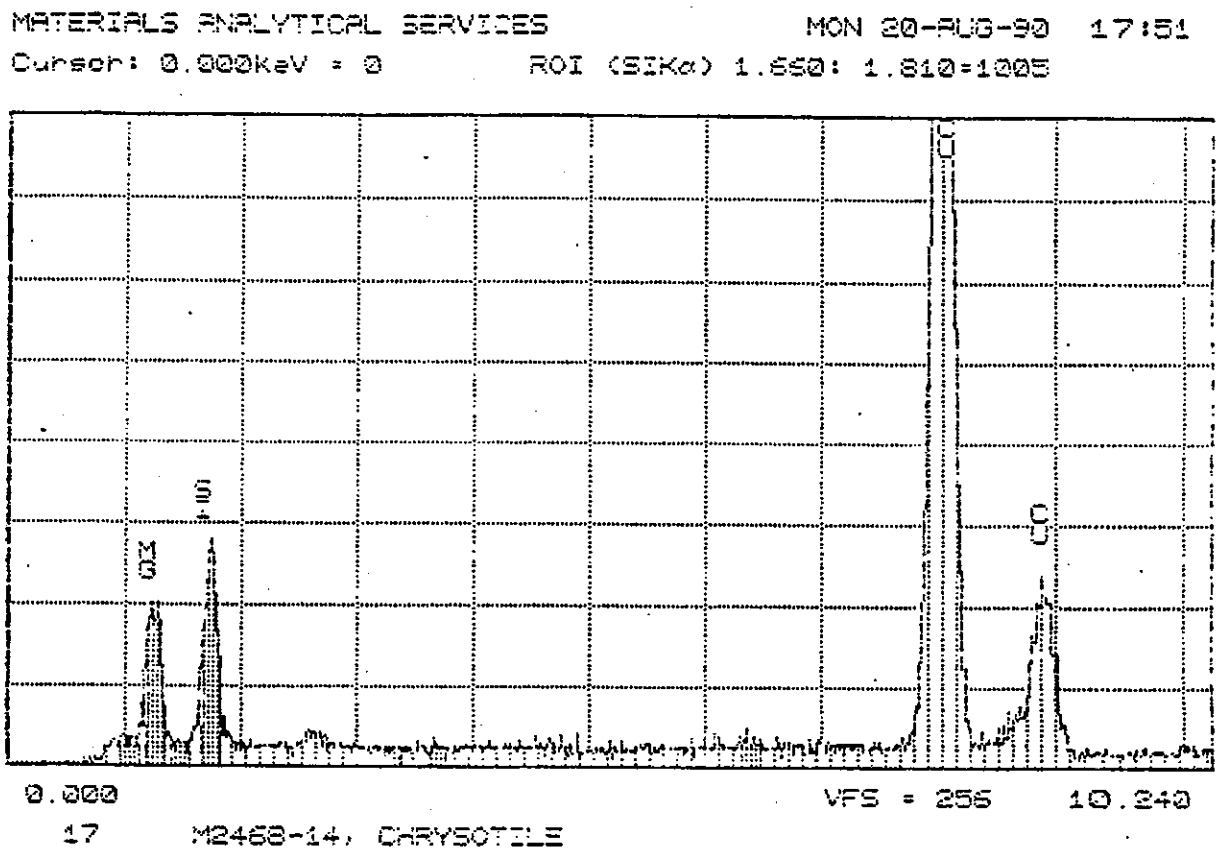
DATE OF ANALYSIS: 8/20/90

ANALYST: W.B. Eglund

Asbestos Minerals: CHRYSOTILE (EDS)(DIFF)

Other Components: VERMICULITE (EDS)
GYPSUM (EDS)(DIFF)
CALCITE (EDS)(DIFF) * TRACE OBSERVED

Comments:


MATERIALS ANALYTICAL SERVICES
MON 20-AUG-90 17:51
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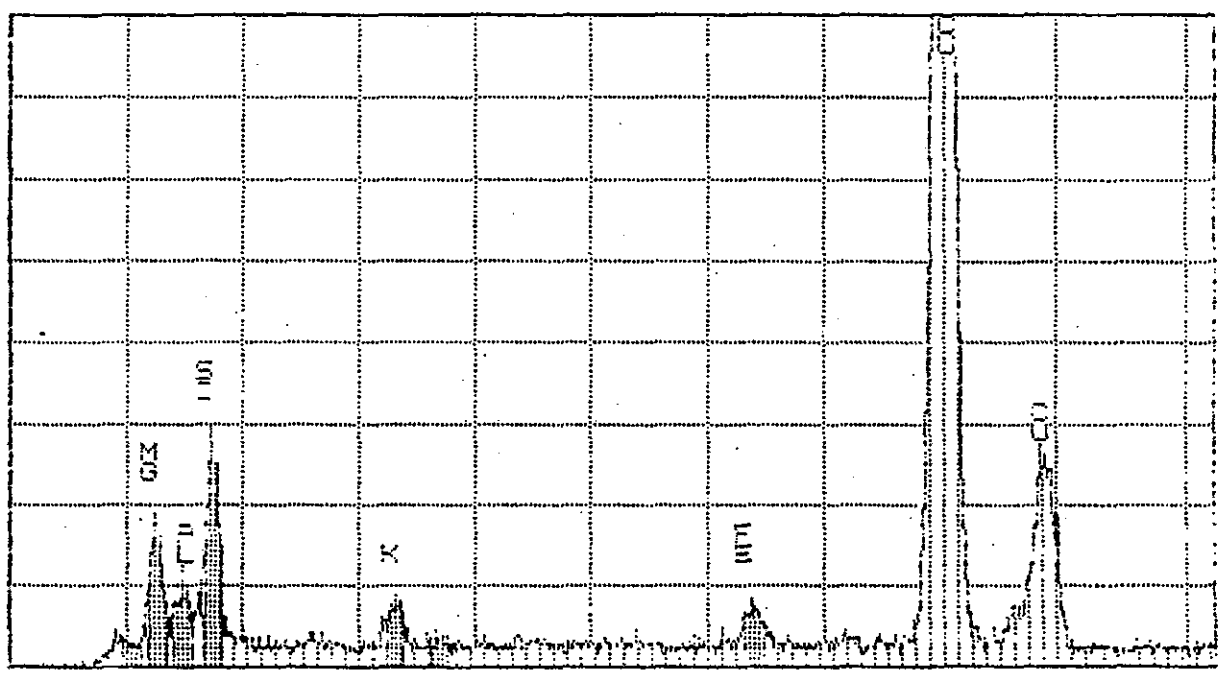
ROI (SiKα) 1.650: 1.810=1005
Mg
Si
Ca
Ca
0.000
VFS = 256
10.240
17 M2468-14, CHRYSOTILE

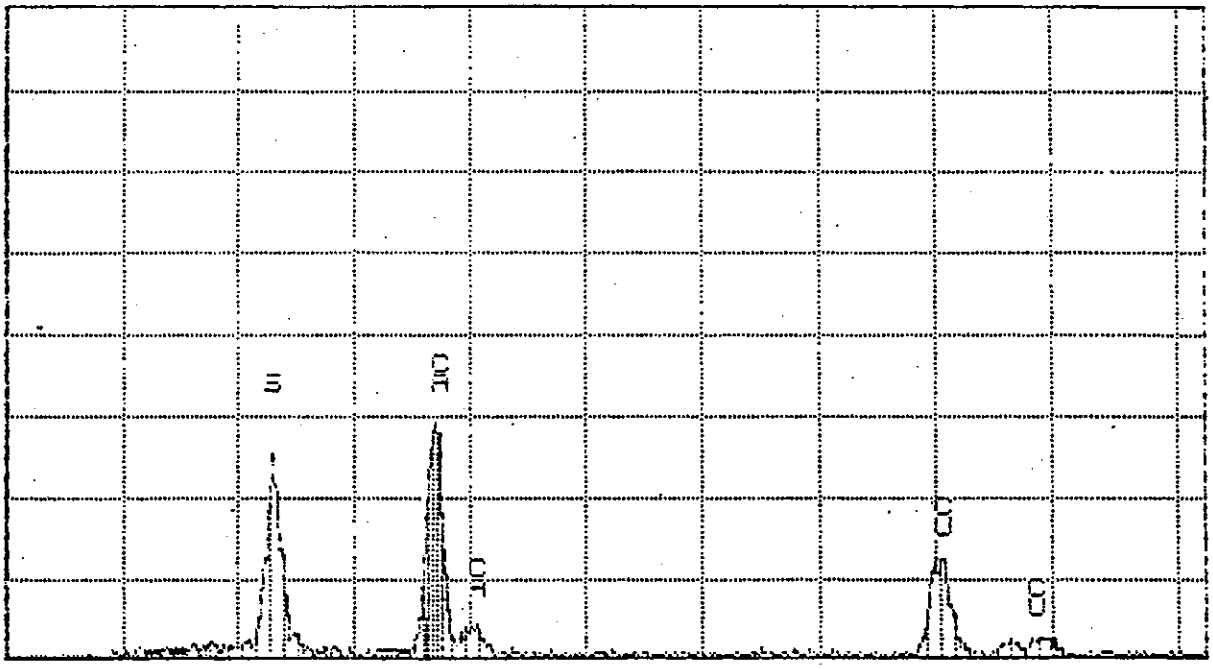
MATERIALS ANALYTICAL SERVICES MON 20-AUG-90 17:55
Cursor: 0.000KeV = 0 ROI (SiKa) 1.660: 1.810=1040



0.000 VFS = 256 10.240
22 M2468-14, VERMICULITE

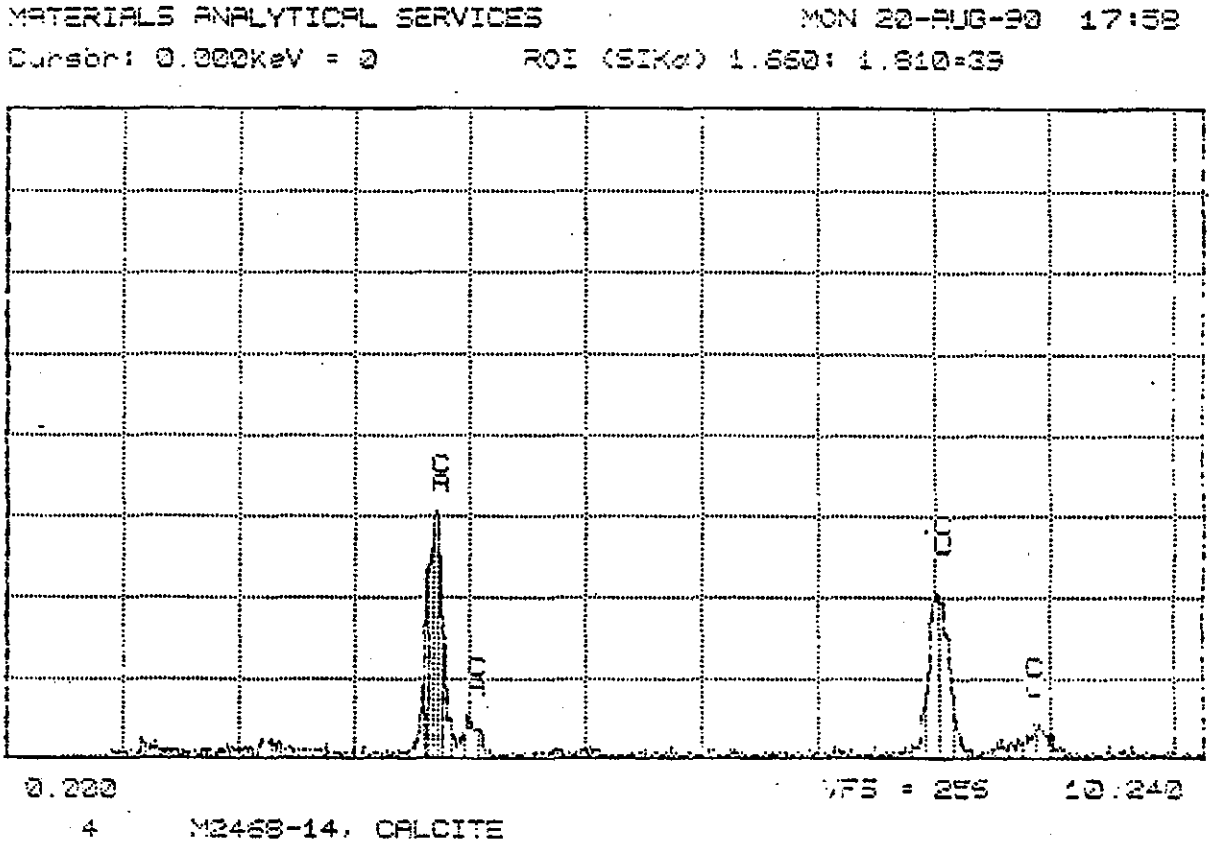
MATERIALS ANALYTICAL SERVICES MON 20-AUG-90 17:56

Cursor: 0.000KeV = 0 ROI (SiKα) 1.660: 1.810=77



0.000 VFS = 256 10.240

5 M2468-14, GYPSUM


MATERIALS ANALYTICAL SERVICES
MON 20-AUG-90 17:58
Cursor: 0.000KeV = 0
ROI (SiKα) 1.660: 1.810=39
CaKa
CaKb
0.000
VFS = 255
10.240
4 M2468-14, CALCITE

MATERIALS ANALYTICAL SERVICES

ADDITIONAL BULK ANALYSIS

Sample # M2468-14 Analyst J.K.R.

Date 08/15/90

ACID DISSOLUTION

(1) Petri dish plus sample:	8.8997	g
(2) Petri dish minus sample:	7.9071	g
(3) Original sample weight:	0.9926	g
(4) Filter weight:	0.0577	g
(5) Clean petri dish weight:	7.3645	g
(6) Final sample weight plus filter and petri dish:	7.8404	g
(7) Final sample wt:((6) -[(4) + (5)])	0.4182	g
(8) Percent residue wt:((7)/(3) x 100)	42.1	%
(9) Amount in solution:(100 - (8))	57.9	%

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MATERIALS
ANALYTICAL
SERVICES

ADDITIONAL BULK ANALYSIS

STARCH VERIFICATION

Sample # M2468-14 Analyst W.B. Eglund

Date 8/17/90

1) Sample Analyzed before/after acid dissolutions

Starch observed

(no) ✓

yes _____

Iodine test
(ceiling tile only)

positive _____

negative _____

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Report on Representative Sampling of Asbestos - Containing Fireproofing

This report has been prepared by Richard L. Hatfield relating to The Prudential Insurance Company of America, et. al. vs. United States Gypsum Company, et. al., Civil Action Nos. 87-4227 and 87-4238 (HAA).

At the request of The Prudential Insurance Company, Law personnel made site visits to Prudential buildings which are the subject of this litigation. Among the purposes for these visits were to confirm the presence, location and homogeneity of the asbestos - containing fireproofing materials and to collect representative samples of the asbestos - containing fireproofing materials. Based on these site visits and other material I have reviewed, I am of the opinion that the samples collected are representative of the asbestos - containing fireproofing found in the buildings.

1100 Milam Building, Houston, TX

Law conducted a visual survey of the 1100 Milam Building and collected fireproofing samples in 1989. Our observations and sampling indicates only one type of asbestos - containing fireproofing is located in this building. Eleven representative bulk samples of this material were collected throughout the building. These samples as well as other samples collected by others were submitted to Materials Analytical Services (MAS) for constituent analysis.

130 John St. Building, New York, NY

Law conducted a visual survey of the 130 Johns St. Building and collected fireproofing samples in 1988. Our observations and sampling indicates only one type of asbestos - containing fireproofing is located in this building. Three additional representative bulk samples of this material were collected to supplement eight other samples collected by McCrone Environmental. The samples were collected throughout the floors. An additional eight representative bulk samples were collected during a 1991 survey. These samples as well as other samples collected by others were submitted to Materials Analytical Services (MAS) for constituent analysis.

First Florida Tower, Tampa, FL

Law conducted a visual survey of the First Florida Tower and collected fireproofing samples in 1989. Our observations and sampling indicates only one type of asbestos - containing fireproofing is located in this building. Ten representative bulk samples of this material were collected throughout the building. These samples as well as other samples collected by others were submitted to Materials Analytical Services (MAS) for constituent analysis.

Century Center Buildings 2200 and 2600, Atlanta, GA

Law conducted a visual survey of the Century Center Buildings 2200 and 2600 and collected fireproofing samples in 1989. Our observations and sampling indicates only one type of

asbestos - containing fireproofing is located in these buildings. Fourteen representative bulk samples of this material were collected throughout the 2200 building and five representative bulk samples were collected from the 2600 building. These samples as well as other samples collected by others were submitted to Materials Analytical Services (MAS) for constituent analysis.

Chatham Center/Hyatt in Pittsburgh, PA

Law conducted a visual survey of the Chatham Center/Hyatt and collected fireproofing samples in 1988. Our observations and sampling indicated only one type of asbestos - containing fireproofing located on floors ground through ten. Seven representative bulk samples of this material were collected throughout the floors. These samples as well as other samples collected by others were submitted to Materials Analytical Services (MAS) for constituent analysis.

Northland Towers (East & West), Southfield, MI

Law conducted a visual survey of the Northland Towers (East & West) and collected fireproofing samples in 1988. Our observations and sampling indicates only one type of asbestos - containing fireproofing is located in these buildings. Eleven representative bulk samples of this material were collected from the East Tower and sixteen representative samples from the West Tower. The samples were collected throughout each tower. These samples as well as other samples collected by others were submitted to Materials Analytical Services (MAS) for constituent analysis.

Northwest Financial Building, Bloomington, MN

Law conducted a visual survey of the Northwest Financial Building and collected fireproofing samples in 1988. Our observations and sampling indicates only one type of asbestos - containing fireproofing is located in this building. Four additional, representative bulk samples of this material were collected throughout the floors to supplement other representative samples collected by other consultants. These samples as well as other samples collected by others were submitted to Materials Analytical Services (MAS) for constituent analysis.

Pru Plaza, Buildings A & B, Denver, CO

Law conducted a visual survey of the Pru Plaza, Buildings A & B and collected fireproofing samples in 1988. Our observations and sampling indicates only one type of asbestos - containing fireproofing is located in these buildings. Eight representative bulk samples of this material were collected throughout the A building and four representative bulk samples were collected from the B building. These samples as well as other samples collected by others were submitted to Materials Analytical Services (MAS) for constituent analysis.

Southdale Office Complex, Edina, MI

Law conducted a visual survey of the Southdale Office Complex and collected fireproofing samples in 1989. Our observations and sampling indicates only one type of asbestos - containing fireproofing is located in this building. Fourteen representative bulk

samples of this material were collected throughout the building. These samples as well as other samples collected by others were submitted to Materials Analytical Services (MAS) for constituent analysis.

Embarcadero I and II, San Francisco, CA

Law conducted visual surveys of Embarcadero I and II and collected fireproofing samples in 1989. Our observations and sampling indicates only one type of asbestos - containing fireproofing is located in each of these buildings. Four representative bulk samples of the fireproofing material located in Embarcadero I were collected to supplement seven samples previously obtained by McCrone and 20 representative bulk samples were collected throughout Embarcadero II. These samples as well as other samples collected by others were submitted to Materials Analytical Services (MAS) for constituent analysis.

Renaissance Tower, Dallas, TX

Law conducted a visual survey of the Renaissance Tower and collected fireproofing samples in 1989. Our observations and sampling indicates only one type of asbestos - containing fireproofing is located in this building. Fifteen representative bulk samples of the fireproofing material were collected throughout most of the building. These samples as well as other samples collected by others were submitted to Materials Analytical Services (MAS) for constituent analysis.

5 Penn Center, Philadelphia, PA

Law conducted a visual survey the 5 Penn Center building and collected fireproofing samples in 1988. Our observations and sampling indicates only one type of asbestos - containing fireproofing is located in this building. Fifty-one representative bulk samples of the fireproofing material were collected throughout the building. These samples as well as other samples collected by others were submitted to Materials Analytical Services (MAS) for constituent analysis.

Twin Towers (Gaslight/North and South), Atlanta, GA

Law conducted a visual survey of the Twin Towers (Gaslight/North) and collected fireproofing samples in 1988. Our observations and sampling indicates only one type of asbestos - containing fireproofing is located in this building. Twenty-one representative bulk samples of the fireproofing material were collected throughout the building. These samples as well as other samples collected by others were submitted to Materials Analytical Services (MAS) for constituent analysis.

Law conducted a visual survey of the Twin Towers (South Tower) and collected fireproofing samples in 1989. Our observations and sampling indicates only one type of asbestos - containing fireproofing is located in this building. Forty - one representative bulk samples of this material were collected throughout the floors. These samples as well as other

samples collected by others were submitted to Materials Analytical Services (MAS) for constituent analysis.

Prudential Plaza, Newark, NJ

Law conducted a visual survey of the Prudential Plaza office building and Mall and collected two fireproofing samples from the 5th floor of the office building in 1988. Our observations and sampling indicates only one type of asbestos - containing fireproofing is located in the office building and a different type of fireproofing in the Mall. Twelve representative bulk samples of the fireproofing material located in the Mall were collected by K & D asbestos consultants. These samples as well as other samples collected by others were submitted to Materials Analytical Services (MAS) for constituent analysis.

Hunt Valley Marriott, Hunt Valley, MD

During our 1988 site visit one sample representing the chrysotile asbestos - containing fireproofing was collected. Additionally two samples representing the amosite asbestos - containing fireproofing were collected by K & D asbestos consultants and were submitted to Materials Analytical Services (MAS) for constituent analysis.

Short Hills Office, Short Hills NJ

Two representative samples of fireproofing were collected by K & D asbestos consultants from the centrally located air handling rooms of the 2nd and the 4th floors of Short Hills Office, Short Hills NJ. building and were submitted to Materials Analytical Services (MAS) for constituent analysis.

Brookhollow, Houston, TX

At the request of The Prudential Insurance Company, four representative samples of fireproofing were collected by BCM asbestos consultants from the centrally located elevator shafts of the 4th, 5th and 7th floors of Brookhollow, Houston, TX and were submitted to Materials Analytical Services (MAS) for constituent analysis.

Signed

Richard L. Hatfield

Richard L. Hatfield
Corporate Consultant
August, 1996

LAW

ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

REPORT PREPARED
BY
RICHARD L. HATFIELD
RELATING TO THE
PRUDENTIAL INSURANCE COMPANY OF AMERICA,
ET. AL.
VS.
UNITED STATES GYPSUM COMPANY, ET. AL.
JULY, 1996

Report of Inspection and Evaluation of Asbestos - Containing Materials

This report has been prepared by Richard L. Hatfield relating to The Prudential Insurance Company of America, et. al. vs. United States Gypsum Company, et. al., Civil Action Nos. 87-4227 and 87-4238 (HAA).

I obtained Bachelor of Science degrees in Experimental Statistics and Geology from North Carolina State University. I am employed as a consultant in my capacity as Assistant Vice President and Senior Corporate Consultant for Law Engineering and Environmental Services, Inc., Atlanta, Ga. I have been employed at Law since December, 1987. Prior to my employment at Law, I served as Director of Services for McCrone Environmental Services, Inc. for five years. I began my career relating to asbestos, serving as a Technical Field Advisor to the US Environmental Protection Agency's Asbestos in Schools Program. I was appointed as an expert advisor to the US Environmental Protection Agency's negotiated rule making committee to promulgate new regulations for asbestos in schools pursuant to AHERA (Asbestos Hazards Emergency Response Act).

During my years dealing with asbestos - related problems, I have been an instructor in over fifty (50) courses and seminars on asbestos in buildings. I have developed protocols for the collection and analysis of asbestos in settled dust of buildings with asbestos - containing building materials, and consulted with the US Environmental Protection Agency (EPA) and the American Society for Testing and Materials (ASTM) in establishing guidelines for these protocols. These protocols have been accepted by both the scientific and the legal community.

As a consultant, I have served hundreds of public and private building owners regarding the proper response they should make regarding the disposition of asbestos in their properties. As part of my consulting services I have acquired extensive experience in the field of identifying products by visual and microscopic examination of the materials and their components and in the field of collection and analysis of the amount and frequency of asbestos release from asbestos - containing building materials.

I have been qualified as an expert in numerous asbestos property damage cases in the fields of asbestos materials characterization which includes asbestos sampling and analysis by various microscopy techniques and asbestos management, including USG v. Admiral Insurance Co. et. al. 1994 WL 605841, Nov. 3 1994 and City of Greenville v. W.R. Grace & Co., 640 F. Supp. 559 (D.S.C. 1986), aff'd City of Greenville v. W.R. Grace & Co., 827 F.2d (4th Cir. 1987). Upon information and belief, the United States Court of Appeals for the Fourth Circuit relied upon my testimony about the asbestos contamination of the Greenville City Hall Building as proof of property

damage. (See attachment for listing of the last five years of deposition and court testimony.)

I have also participated in or reviewed a number of experiments and demonstrations involving asbestos - containing materials (ACM) in which either the asbestos - containing materials or their residue were disturbed during routine building operations and activities which resulted in the release of significant levels of airborne asbestos - containing dust. Measurements were made of either airborne or surface asbestos dust released during these operations. Such tests have demonstrated that significant numbers of asbestos fibers are released when these routine building operations and activities are undertaken. This release of asbestos fibers into the building's environment results in elevated airborne levels for some time and leads to the contamination of building and property surfaces with asbestos dust. For the purposes of this report, the word "contamination" is intended to convey the idea that the surfaces analyzed contain asbestos fibers to a degree far in excess of what would be expected on a surface which was not in proximity to an asbestos - containing material that was releasing asbestos fibers. In my experience in collecting, analyzing and reviewing thousands of dust samples such as the ones collected in this case, a dust sample taken from areas without asbestos - containing materials or some other identified source will reveal little to no contamination. Therefore, dust samples collected in the vicinity of an asbestos - containing material which reveal significant numbers of asbestos fibers demonstrate release from the material present in addition to demonstrating surface contamination.

Air sampling techniques can prove to be quite useful in measuring airborne asbestos concentrations during work practices which may disturb asbestos-containing materials, debris or dust. Ambient air sampling (sampling during times of no disturbance) can be quite misleading and are not good techniques to determine ACM's condition, or to make determinations as to levels of surface contamination. Ambient air sample results should not be used solely to make decisions about corrective actions since they do not provide sufficient information about airborne levels generated during many routine building activities. Defendants' representatives have collected a series of ambient air samples in and around these buildings. Some observations were made by myself and other Law personnel which would indicate that some of the sampling was not properly conducted. These observations included poorly placed sampling pumps, filters not positioned properly and equipment failure.

Asbestos fibers which are released from deteriorating ACM or from the disturbance of ACM will disburse into the ambient air within the buildings, settling on various surfaces in the building, contaminating various surfaces including furnishing, carpeting, draperies, supplies, books and other materials in buildings. The asbestos dust on these surfaces are subject to reentrainment into the air when this dust is disturbed during routine building activities. The reentrained fibers are as much of a concern as newly released asbestos fibers. The asbestos contamination will remain unless special cleaning procedures are employed to eliminate the asbestos - containing dust from non - porous surfaces or the proper removal and disposal of porous

materials, to which asbestos fibers customarily attach themselves. If ACM which is releasing asbestos fibers is left in areas where surfaces have been cleaned, these surfaces in time will become re-contaminated.

The dust sampling technique is accomplished by running a battery operated air sampling pump, equipped with a membrane filter cassette identical to those used in air sampling over a designated area of a surface. A nozzle fashioned from 1/4 inch diameter tubing is attached to the open nipple of the cassette cap (prior to August 1989 open face cassette). By operating the pump at 2 liters / minute the nozzle face velocity should be approximately 100 cm / second. The actual sample collection process involves delineating a surface area of interest. This is accomplished by measuring a selected area of at least 100 square centimeters. The size of the sampled area may also be measured after the collection is complete. Once the pump is activated, the nozzle is passed along the surface in a manner sufficient to vacuum up any settled dust. Light rubbing of the surface may be necessary to dislodge any lightly attached materials, hard rubbing is not necessary. The vacuuming should continue over the entire sample area until the operator is satisfied that all the dust which can be removed is removed. Upon completion, the sampling cassette should be turned upright and with the pump still running, the cap should be loosened and the nozzle removed and placed into the cassette. After replacing the cap, the pump may be turned off and the cap plug replaced to seal the cassette. These samples are documented as to their location, surface and area sampled, along with other pertinent project information. The filters are then transported to a laboratory for analysis.

The materials collected on the filter are then prepared for analysis under the electron microscope. The microscopist identifies and quantifies asbestos fibers in the microscope grid opening and reports the findings in fibers per unit area such as fibers per square centimeter or fibers per square foot using a mathematical calculation.

Having developed the use of dust sampling to make determinations about asbestos fiber release and contamination in the 1980's, I have followed the development of this sampling and analysis technique to present. To my knowledge, there has been only one significant change to the collection process and none to the analysis process. This collection change occurred about mid-1989 following the EPA's dust sampling workshop. Prior to this workshop surface dust samples were collected using an open face cassette. After making some determinations as to the collection efficiency of the open face cassette versus the use of close face cassette equipped with a sampling nozzle, I made the recommendation to the workshop that future sampling be conducted using the nozzle rather than the open face cassette, which was accepted and incorporated in EPA's method. Upon return from the workshop approximately August 1, 1989, I instructed Law personnel to begin using the nozzle for sampling. This is the sampling equipment described in the current ASTM protocol. As part of their work on this case, Compass Environmental collected pair samples using both collection methods. Based on the analytical data generated by this study, one must conclude the open face cassettes were less efficient in the collection of the asbestos dust. On the

average, the open face cassettes collected only 10 percent of the samples now collected using the nozzel equipped cassette.

The following table illustrates the results of the study.

Comparison of Open Face (PR) verses Nozzle Cassettes

	Building	AB (Nozzle) *	PR (Open Face) *	Factor
1	Renaissance Tower	7.7 Billion	1.8 Billion	4.28
2	Pru Plaza (Newark, NJ.)	8.8 Billion	467 Million	18.9
3	Embarcadero 1	770 Million	229 Million	3.36
4	Embarcadero 2	5.5 Billion	625 Million	8.78
5	5 Penn Center	8.5 Billion	525 Million	16.19
* Average per sq. ft. asbestos levels from three samples in each building			Total	51.51
			Average	**10.3**

As requested, I and other Law personnel have inspected and collected samples of various asbestos - containing materials and dust samples in the buildings which are the subject of this litigation. Law personnel also accompanied defendants' representatives during their inspections. During most of these visits, reports, photographs and, in some cases, video tape documentation were generated. The subject asbestos-containing materials in these buildings are friable fireproofing which is generally sprayed on to steel beams, columns and floor decking.

The inspection process included a physical examination of the materials to determine the presence, location and use of the materials in the buildings and a determination of conditions. The level of contamination was measured in most of the facilities by the collection and analysis of dust samples. The findings of the inspection and sample collection were documented in various forms including reports, notes, logs, 35 mm photographs and video tape.

In some cases demonstrative activities were conducted and video taped to show how certain activities such as opening and closing a ceiling tile or disturbing the asbestos - containing materials release asbestos. These videos clearly demonstrate when asbestos - containing dust and debris or the in place asbestos-containing materials are disturbed, asbestos-containing dust becomes airborne and results in contaminating surfaces below. These videos make use of a lighting technique referred to as the Tyndell light effect to illuminate any airborne particles. This lighting effect is the same as the observation of airborne dust through a stream of sunlight through a window. Dust samples were taken on the top of surfaces above the ceilings prior to the demonstrations and from the plastic covered floor following the demonstrations. These samples demonstrate that asbestos - containing dust was disturbed and that typical maintenance activities result in contaminating surfaces below. For safety, these

demonstrations were conducted in contained areas to prevent the spread of the released asbestos and were thoroughly cleaned following the demonstrations.

The following table illustrates the results of the dust samples collected before and after the video demonstrations.

	Building	Above Ceiling (Before) *	Floor Below (After) *
1	Prudential Plaza (Newark, NJ.)	18.9 Billion	11.5 Billion
2	5 Penn Center	6.7 Billion	8.8 Billion
3	Embarcadero Center 1	37.8 Billion	14.8 Billion

* Sample results listed above are asbestos structures per sq. ft.

In addition to the general information above, I will also testify about the collection, analysis and interpretation of the dust samples collected at the Prudential buildings by both Compass Environmental and Law Companies.

The general findings are listed below.

1. The overall asbestos control programs are in place and functioning.

2. Since their discovery, a significant amount of the ACM has been removed. Some areas of the ACM have been encapsulated or enclosed, while other areas of the remaining materials have been repaired or patched under the O&M programs and will require continuous monitoring until such time as they are removed.

3. In general, friable ACMs can be classified in the following conditions. Materials which appear in good condition display very little damage (less than 1%), no asbestos - containing debris is present and conditions exist where only slight or no contamination is or should be present. Materials described as in fair condition indicates some damage was observed (1 - 10%), some asbestos - containing debris is present and levels ranging from moderate to extreme contamination would likely be or is present. Poor condition materials have significant damage (greater than 10% overall), significant amounts of asbestos - containing debris present and heavy to extreme levels of contamination very likely to be or are present. These condition categories are consistent with as AHERA's (Asbestos Hazzards Emergency Responce Act) damaged categories of no damage, damaged, and significantly damaged ACM. Additionally, AHERA use the potential for damage to add two additional categories, potential for damage and potential for significant damage. Generally, current conditions are the best indication of a material's potential for damage, unless there are

indications of future changes in the material's environment which would either increase or decrease the material's potential for damage.

4. The remaining materials located in the Prudential buildings are generally in a fair condition with some areas in poor condition. Additional areas of materials were observed in poor condition prior their to removal.

5. The conditions of the fireproofing in the Prudential buildings were generally a result of water damage, air erosion, vibration, building movement, physical contact causing abrasions, scratches, and gouges, delamination of materials due to the loss of either cohesion or adhesion, and cracking.

6. Nearly all of the dust samples collected and analyzed established some level of contamination; many samples demonstrated levels of contamination in excess of one (1) billion asbestos structures per square foot (extremely contaminated). Generally, as one might expect, the dust samples taken in closer proximity of the ACM resulted in the higher levels of contamination.

7. All of the building personnel encountered during the inspections were aware of the presence of the asbestos materials in their buildings.

Building Specific Information and Opinions

1. Prudential Plaza Denver, Co. - The fireproofing materials where located in the two low rise buildings A and B. These buildings were inspected by myself in 1988 and the fireproofing materials were observed in fair condition. During this visit ten dust samples were collected in various locations in each building. The analytical results of these dust samples demonstrated fiber release, and contamination. The results ranged from BDL (Below Detectable Limit) to 1.1 billion asbestos structures per square foot. Note that these dust samples were collected using the open face method and should be considered conservative. It is my opinion that the subject fireproofing in this building released asbestos fibers and debris and caused contamination in this building.

2. Century Center Atlanta, Ga. - In 1988 Law personnel collected ten dust samples throughout the 2200 building. The analytical results of these dust samples ranged from 1.1 million to 11.7 billion asbestos structures per square foot. Note that these dust samples were collected using the open face method and should be considered conservative. This material was in fair to poor condition. Eight dust samples were collected in the 2600 building and resulted in 303 thousand to 19.1 billion asbestos structures per square foot. Note these dust samples were collected using the open face method and should be considered conservative. This material was also in fair to poor condition. It is my opinion that the subject

fireproofing in these buildings released asbestos fibers and debris and caused contamination in these buildings.

3. Embarcadero One San Francisco, Ca. - In 1988 fifteen dust samples were collected during an inspection. The results of these early dust samples ranged from BDL to 7.9 billion asbestos structures per square foot. Note these dust samples were collected using the open face method and should be considered conservative. In 1995, I made an additional inspection of the materials remaining in the building and found them in fair to poor condition. During this inspection I collected four additional dust samples, which, when analyzed, resulted in 7.7 billion to 11.3 billion asbestos structures per square foot. Additionally, 3 dust samples collected by Compass Environmental also confirmed the presence of asbestos contamination at levels between 501 million to 1.2 billion asbestos structures per square foot. It is my opinion that the subject fireproofing in this building released asbestos fibers and debris and caused contamination in this building.

4. Embarcadero Two San Francisco, Ca. - In 1988, nine dust samples were collected throughout the first eleven floors where the asbestos - containing fireproofing is located. The results of these samples showed a contamination level of BDL to 89 million asbestos structures per square foot. Note these dust samples were collected by the open face method and should be considered conservative. During a 1994 inspection by Law personnel, seven additional dust samples were collected, of which three were analyzed. The results indicated contamination levels between 1.8 billion and 5.1 billion asbestos structures per square foot. I also inspected this building during my 1995 visit and collected three additional dust samples. These samples resulted in contamination levels between 2.4 billion to 25.4 billion asbestos structures per square foot. Additionally, three dust samples collected by Compass Environmental also confirmed the presence of asbestos contamination at levels between 567 million to 12.8 billion asbestos structures per square foot. The fireproofing materials in this building should be considered in fair to poor condition. It is my opinion that the subject fireproofing in this building released asbestos fibers and debris and caused contamination in this building.

5. First Florida Tower Tampa, Fla. - During a 1988 inspection by Law personnel the in place asbestos - containing fireproofing appeared in good condition but fine debris was observed. Eleven surface dust samples were collected from various locations in the building. These samples, when analyzed, demonstrated contamination levels from BDL to 729 millions asbestos structures per square foot. Note these dust samples were collected using the open face method and should be considered conservative. In 1995, I inspected the remaining asbestos- containing fireproofing and collected four additional dust samples. These dust samples showed a contamination level of between 1.1 billion and 36.8 billion asbestos structures per square foot. Most of the remaining asbestos - containing fireproofing was observed in rather poor condition. It is my opinion

that the subject fireproofing in this building released asbestos fibers and debris and caused contamination in this building.

6. Chatham Center/Hyatt Pittsburgh, Pa. - Reports from consultants indicated that the fireproofing located in the first ten floors showed signs of damage. These conditions were confirmed by a 1988 inspection by Law personnel. During this inspection nine dust samples were collected. The results of these dust samples demonstrated levels of contamination between 67.4 thousand and 75 million asbestos structures per square foot. Note these dust samples were collected using the open face method and should be considered conservative. It is my opinion that the subject fireproofing in this building released asbestos fibers and debris and caused contamination in this building.

7. 5 Penn Center Philadelphia, Pa. - Reports by asbestos consultants indicated that the asbestos - containing fireproofing was damaged and deteriorating and became airborne when disturbed. Inspection of the fireproofing by Law personnel confirmed these conditions and five dust samples showed contamination levels between 149 thousand and 85 million asbestos structures per square foot. Note these dust samples were collected using the open face method and should be considered conservative. An additional inspection by myself of the remaining material on the 35th floor revealed asbestos - containing fireproofing in very poor condition with much delamination of the fireproofing and debris observed. Five additional dust samples obtained during this inspection revealed contamination levels between 2.7 billion to 9.1 billion asbestos structures per square foot. Additionally, 3 dust samples collected by Compass Environmental also confirmed the presence of asbestos contamination at levels between 4.1 billion to 13.1 billion asbestos structures per square foot. It is my opinion that the subject fireproofing in this building released asbestos fibers and debris and caused contamination in this building.

8. 130 Johns St. New York, NY. - The asbestos - containing fireproofing in this building is applied primarily to the structural columns of the building. However, the fireproofing is accessible above the drop ceiling at the top of the columns, at certain exterior columns and in mechanical spaces. During a 1988 inspection by Law personnel, areas of fireproofing were observed damaged fireproofing and resulting debris was observed. Eleven surface dust samples and a HVAC pre-filter sample were collected during this visit. The resulting analyses indicated contamination levels ranging from BDL to 26.3 million asbestos structures per square foot. Note these dust samples were collected using the open face method and should be considered conservative. In 1995 I inspected this facility and observed material in fair to poor condition. I collected an additional four dust samples. These samples indicated contamination levels between 1.0 billion and 24.3 billion asbestos structures per square foot. It is my opinion that the subject fireproofing in this building released asbestos fibers and debris and caused contamination in this building.

9. Hunt Valley Marriott, Hunt Valley, Md. - During inspections by asbestos consultants, the fireproofing materials were observed in damaged and deteriorating conditions. Law personnel inspected the facility in 1988 and confirmed similar observations. During Law's inspection, six surface dust samples and a HVAC pre-filter sample were collected. The ensuing analysis indicated contamination levels between BDL and 2.1 billion asbestos structures per square foot. Note these dust samples were collected using the open face method and should be considered conservative. It is my opinion that the subject fireproofing in this building released asbestos fibers and debris and caused contamination in this building.

10. 1100 Milam, Houston, TX. - Law personnel inspected this facility in 1988 and observed some of the fireproofing in damaged condition. During this inspection fifteen dust samples were collected throughout the building. The results of these dust samples demonstrated contamination levels between 1.7 million and 5.7 billion asbestos structures per square foot. Note these dust samples were collected using the open face method and should be considered conservative. It is my opinion that the subject fireproofing in this building released asbestos fibers and debris and caused contamination in this building.

11. Northland Towers, Southfield, Mi. - Law personnel inspected the tower buildings in 1988. During the inspection the asbestos - containing fireproofing was observed in fair condition with some areas in poor condition. Six dust samples were collected from the East and West towers. These dust samples had asbestos concentrations between 78 thousand and 40 million asbestos structures per square foot. Note these dust samples were collected using the open face method and should be considered conservative. These conditions were confirmed visually by my inspection in 1996 and by three additional dust samples collected in the West Tower and three additional dust samples collected in the East Tower by Compass Environmental. The results of these samples ranged from 2 billion to 5.9 billion asbestos structures per square foot in the West Tower and from 186.5 million to 3.1 billion asbestos structures per square foot in the East Tower. It is my opinion that the subject fireproofing in these buildings released asbestos fibers and debris and caused contamination in these buildings.

12. Northwest Financial Building, Bloomington, MN - During a 1988 inspection by Law personnel the in place asbestos - containing fireproofing appeared in good condition but fine debris and dust were observed. Fifteen dust samples were collected during this inspection. The results of the dust samples indicated contamination levels which ranged from BDL to 2.6 billion asbestos structures per square foot. Note these dust samples were collected using the open face method and should be considered conservative. It is my opinion that the subject fireproofing in this building released asbestos fibers and debris and caused contamination in this building.

13. Prudential Plaza, Newark, NJ - Law personnel inspected the fireproofing in the mall area and observed delamination and debris present on tops of ceiling tiles. The fireproofing in the office building was observed and dust samples were collected. The results were between BDL and 437 thousand asbestos structures per square foot. In 1995 I inspected the mall areas and the 5th floor of the office complex. I observed the fireproofing in the mall areas to be in fair to poor condition with much debris in many areas. I also inspected the asbestos - containing fireproofing on the 5th floor of the office complex. This material was in poor condition. During my inspection seven dust samples were collected from both areas. The results of these dust samples indicated contamination levels between 1.1 billion to 26.6 billion asbestos structures per square foot. Additionally, 3 dust samples collected by Compass Environmental also confirmed the presence of asbestos contamination at levels between 2.2 billion to 21.7 billion asbestos structures per square foot. It is my opinion that the subject fireproofing in this building released asbestos fibers and debris and caused contamination in this building.

14. Renaissance Tower, Dallas TX - Law personnel inspected the building in January of 1989. Observations of fireproofing debris and dust were made. Nine surface dust samples were collected and analyzed. The results indicated contamination levels between BDL and 10.9 billion asbestos structures per square foot. Note these dust samples were collected using the open face method and should be considered conservative. An additional inspection was made by Law personnel in 1996 and confirmed the condition of the remaining fireproofing in fair condition. Additionally, three dust samples collected by Compass Environmental confirmed the presence of asbestos contamination at levels between 2.2 billion to 17.0 billion asbestos structures per square foot. It is my opinion that the subject fireproofing in this building released asbestos fibers and debris and caused contamination in this building.

15. Southdale Office Complex, Edina, MN - In February of 1989 Law personnel inspected the complex and observed fireproofing debris and dust. During the inspection seven dust samples were collected. the analysis of these dust samples indicated contamination levels between BDL and 13.9 billion asbestos structures per square foot. Note these dust samples were collected using the open face method and should be considered conservative. Some air samples were taken during an operations and maintenance procedure which demonstrated elevated airborne concentrations. It is my opinion that the subject fireproofing in this building released asbestos fibers and debris and caused contamination in this building.

16. Twin Towers, Atlanta, GA - Inspections by Law personnel in 1986 and in 1989 observed fireproofing materials in poor condition, with much dust and debris on surfaces below. This condition was confirmed by my inspection in 1995 of the remaining fireproofing on the 21st floor. Four dust samples collected on this floor shows contamination levels between 9.5 billion to 28.3 billion asbestos

structures per square foot. It is my opinion that the subject fireproofing in these buildings released asbestos fibers and debris and caused contamination in these buildings.

17. Brookhollow, Dallas TX - The asbestos - containing fireproofing was removed in 1986 and 1987 prior to occupancy by a new tenant.

18. Short Hills Office Complex, Short Hills, NJ - The asbestos - containing fireproofing was removed in 1984 piror to demolition of the building.

While the mere presence of asbestos - containing materials in a building does not necessarily mean asbestos fibers are being released or that there is an immediate health hazard present, its presence does present a continuing potential for the release of asbestos fibers into the building's environment and a potential for a health hazard. When asbestos materials are present and these materials have and are being disturbed or are deteriorating, asbestos fibers are being released into the air and on to surfaces below. This dust can, in turn being reentrained by the building maintenance staff, outside service personnel and some of the general building occupants. The U.S. EPA believes, as I do, that an increased exposure to asbestos results in an increase in occurrence of asbestos - related diseases. It was obvious from the inspections that the asbestos - containing materials in these buildings have and are continuing to release asbestos due to their presence, condition, activities and the building dynamics, despite reasonably good asbestos control programs. The asbestos - related problems and the asbestos contamination will continue until such time as the accessible, friable asbestos materials are removed.

Generally there are several ways to deal with in place ACMs. These include placing the materials under an Operations and Maintenance Program (O&M). This program is designed to control and minimize disturbance of the ACMs. While all ACM discovered in a building should be placed in an O&M program, only materials in good condition should remain in the program for an extended period of time. Sometimes an ACM is suitable for encapsulation or enclosure. These control methods are coating the ACM with a paint - like material or enclosing the ACM behind an air tight barrier. Both of these control methods should also be considered temporary and the treated ACM must still remain in the O&M program and under the watchful eye of the building's asbestos coordinator. The permanent solution to asbestos related - problems, is to remove the ACM and any contaminated materials which can not reasonably be cleaned, and replace them with new suitable non-asbestos containing materials.

The observations of the use, locations and conditions of the asbestos - containing fireproofing materials made during site visits of Prudential's buildings, the observed dust and debris on tops of ceiling systems and light fixtures coupled with the results of dust sampling conducted in various Prudential's buildings demonstrated building contamination and potential for exposure to airborne asbestos fibers. Additionally, given the location and conditions of the asbestos - containing fireproofing

materials, I would expect conditions and the problems to worsen in the future if not abated. Therefore the appropriate remedial action was to place the asbestos-containing fireproofing materials in an O&M program and schedule their removal and replacement. In my opinion, the corrective actions, in the above listed Prudential buildings were reasonable, appropiate and consistant with this approach.

This report summarizes opinions and testimony which I intend to provide in this case. These opinions are based on my work in these buildings and other buildings around the country, training, experience, studies and research of myself as well as studies and research of others scientists, asbestos professionals and governmental agencies. Attached to this report are my Curriculum Vitae, a list of testimony, a list of documents of which I may rely or use as exhibits, and a list of compensation rates.

Signed

Richard L. Hatfield

Richard L. Hatfield

July, 1996

RICHARD L. HATFIELD

Senior Corporate Consultant
Assistant Vice President
Principal

EDUCATION: B.S., Experimental Statistics, North Carolina State University, 1974
B.S., Geology, North Carolina State University, 1978

PROFESSIONAL MEMBERSHIPS:
American Industrial Hygiene Association
Asbestos Abatement Council - AWCI
ASTM D-22 Project & Steering Committee
National Asbestos Council
National Institute of Building Sciences

ARTICLES:
"Exposure to Airborne Asbestos Associated With Simulated Cable Installation Above A Suspended Ceiling"
"Re-entrainment Of Asbestos From Dust In A Building With Acoustical Plaster"
"Asbestos Exposure During and Following Cable Installation in the Vicinity of Fireproofing"

CAREER SUMMARY

Mr. Hatfield joined Law Engineering in 1978 and was assigned to the U.S. EPA's "Asbestos in Schools" program in 1979. With the completion of that program and the initial attention of building managers towards the asbestos problems, Mr. Hatfield continued to assist Law by consulting with clients and developing methods to solve asbestos problems.

In 1982, Mr. Hatfield was recruited by a prominent laboratory, McCrone Environmental, to develop and manage their Atlanta based company. Their goal was to provide quality field and laboratory services for the asbestos abatement industry. These services included building surveys, air and project monitoring, consulting, expert testimony, and extensive, analytical and microscopy services. During this time, the company, McCrone

Environmental Services was recognized as a leader in the specialized fields of light and electron microscopy.

During 1987, some significant changes in the industry were made, notably the formulation of Law Associates, Inc. and its subsidiary Electron Microscopy Laboratory - Materials Analytical Services, Inc. Later in 1987, Mr. Hatfield returned to the Law Companies Group by joining Law Associates to help develop its consulting services and assist the laboratory in the development of special analytical services.

ASBESTOS RELATED EXPERIENCE

Mr. Hatfield has been actively engaged in asbestos related services since 1979 when he served as a Technical Field Advisor for U.S. EPA's "Asbestos in Schools Program". While serving on this program, Mr. Hatfield assisted in the formulation of New York State, New Jersey and the City of New York asbestos programs. He helped with training state and local governmental personnel, contractors and the general public in regulations, building surveys and in work procedures associated with the discovery, control and removal of asbestos-containing materials.

Upon the completion of EPA's project, Mr. Hatfield returned to Law and began it's development of asbestos related services, particularly its analytical services. Mr. Hatfield's knowledge and experience has been sought to further many others education in dealing with asbestos-related problems. It should be noted that Mr. Hatfield's teaching experience began as a prime instructor in some of the earliest and most recognized training programs.

While directing McCrone Environmental, Mr. Hatfield began serving as a expert witness in property damage, "Cost Recovery" litigation. Utilizing the expertise of the microscopy laboratory, Mr. Hatfield developed procedures for the identification of asbestos-containing products and special methods for evaluation asbestos contamination in buildings. In addition to individual property damage cases, Mr. Hatfield testified at the Johns Manville Hearing for Property Damage settlements in Washington, D.C.

Since returning to Law, Mr. Hatfield has been involved with management and training of project engineers, consulting with a broad spectrum of clients and the development of special analytical services for the laboratory, Materials Analytical Services. Working closely with Dr. Longo and the other microscopists, Mr. Hatfield has shared his procedures and experience to further develop analytical testing services for building evaluation and property damage litigation.

Mr. Hatfield's knowledge and experience has been sought to further many others' education in dealing with asbestos-related problems. In addition to lecturing, Mr.

Hatfield has twice, taught the NIOSH Course NO. 582 "Sampling and Evaluating Airborne Asbestos Dust" for the University of Alabama in Birmingham, and was appointed as an expert advisor to EPA's negotiated rule-making committee to promulgate new regulations for asbestos in schools. These regulations are known as the Asbestos Hazard Emergency Response Act (AHERA) regulations. Additionally Mr. Hatfield has participated in the US EPA's Peer Review of research projects.

RICHARD L. HATFIELD
Corporate Consultant / Principal

List of Depositions/Trial Testimony

1991

Chen Northern; Salt Lake City, Utah - Deposition
Chromalloy Clayton Center - Deposition
City of Baltimore - Deposition
City of Wichita - Deposition
Cullen Center; Houston, Texas - Deposition
IDS; Minneapolis, Minnesota - Deposition
Kansas City International; Kansas City - Trial Testimony
National Schools Class Action - Deposition
Northglenn Mall; Denver, Colorado - Trial Testimony
South Carolina Consolidated Schools - Deposition
University of Vermont - Deposition

1992

7th Day Advent - Deposition
Archdiocese of St. Louis - Deposition
Armstrong - Deposition
Bunker Hill - Deposition
Bunker Hill - Trial Testimony
Commerce Center - Trial Testimony
Cullen Center - Deposition
Cullen Center - Trial Testimony
Dayton - Deposition
Farm Credit - Deposition
Jackson Laurel - Deposition
Metro Atlanta - Deposition
Prudential - Deposition
State Farm - Deposition
Trizec - Deposition
Wichita - Deposition

1993

7th Day Adventist, Trial Testimony
Barnes Hospital, Deposition
CalFed, Deposition
Celotex, Deposition
Celotex, Trial Testimony
City of Baltimore, Trial Testimony
Commonwealth of Massachusetts, Deposition
Clearwater, Deposition
Ecolab, Deposition
Fargo Clinic, Deposition
Michigan Class Action, Deposition
Northstar, Trial Testimony
Northern States Power (NSP), Deposition
State Farm, Trial Testimony

1994

1880 Century Park, Deposition
1880 Century Park, Trial Testimony
BellSouth, Deposition
Chittenden Trust, Deposition
Dallas Space Center, Deposition
Exchange Park Mall, Trial Testimony
Marine City Tower, Deposition
Marina City Tower, Trial Testimony
Mt. Lebanon, Deposition
One Wilshire, Deposition
Paramount, Deposition
Sioux Valley, Deposition
Sioux Falls, Trial Testimony
Commonwealth of Massachusetts, Trial Testimony

1995

Banc One Building; Milwaukee, Deposition
Chicago City Schools, Deposition
Piedmont Center, Deposition
Irvine Corporation, Deposition
IDS Tower, Trial Testimony
Hines, Deposition
Connecticut Mutual, Deposition
NBD, Deposition
Commonwealth of Kentucky, Deposition

425 California Building, Deposition
Fox Plaza, Deposition
Sentinel Management, Deposition

1996
State of North Dakota, Deposition
1st National Bank Center, East Blvd.; Oklahoma, Deposition

updated: 06/11/96

rlh-96.sam

Hatfield, R.L.

LIST OF DOCUMENTS / EXHIBITS

The following is a listing of the principal materials upon which I will use as a basis for my opinions and may use these materials as exhibits at trial. I may rely in whole or in part on the following documents and items, as well as the opinions, data, and publications contained in other plaintiffs expert reports. I may also comment on the reports, data or testing done by defendant's expert.

1 Richard R. Hatfield Curriculum Vitae

2 Hatfield, R.L., "Settled Dust Sampling and Analysis, Determining Levels of Asbestos Contamination" 1994

3 Millette, J.R., W.M. Ewing and R.S. Brown, 'Stepping on Asbestos Debris," Microscope, vol. 38, 1990 pp 321-326.

4 Millette, J.R., W.M. Ewing and R.S. Brown, "A Close Examination of Asbestos-Containing Debris", NAC Journal Fall 1990, pp. 38-40.

5 Keyes, D.L., Ewing, W.M. et al., "Baseline Studies of Asbestos Exposure During Operations and Maintenance Activities" Appl. Occup. Environmental Hygiene, vol 19, no 11 (1994)

6 Keys, D.L., Chesson, J., et al. "Reentrainment of Asbestos from Dust in Building with Acoustical Plaster" Environmental Choices Technical Supplement, vol. 1, no 1 (1992)

7 Ewing, W.M., Chesson, J., et al. "Asbestos Exposure During and Following Cable Installation in the Vicinity of Fireproofing" Environmental Choices Technical Supplement vol. 2, no 1 (1992).

8 Keys, D.L., Chesson, J., et al. "Exposure to Airborne Asbestos Associated with Simulated Cable Installation Above a Suspended Ceiling" Am J Ind. Hyg. J 1991; 52 (ii): 479-484

9 ASTM Method D-5755 (1995)

10 GSA Asbestos Abatement Guide Specification 02085 (July 1993)

Hatfield, R.L.

11 Memo from J.C. Yang to B.J. Bettachi (June 4, 1986)

12 Letter from Michael E. Beard to Vickie H. Ainslie (August 20, 1991)

13 MAS analysis on dust sample from 888 project (Sept. 8, 1992)

14 MAS analysis on dust samples from First Union Bank Building (Oct. 14,1992)

15 MAS analysis on dust samples from Multi-Foods, Town of City Center (July 13, 1992)

16 MAS analysis on dust sample from Galtier Plaza (April 6,1992)

17 MAS analysis on dust samples from Multi-Foods, Town of City Center (July 13, 1992)

18 MAS analysis on dust samples from Clayton Executive Center II (Feb. 10, 1992)

19 MAS analysis on dust samples from 130 John Street, Project M1839

20 MAS analysis on dust samples from 130 John Street, Project M13586

21 MAS product identification analysis for bulk samples from 130 John Street (June 28,1990)

22 MAS product identification analysis for bulks samples from 130 John Street (March 22, 1991)

23 MAS analysis for dust samples from Hunt Valley Marriott Hotel, Project M2074

24 MAS Product identification analysis for bulk samples from Hunt Valley Marriott (July 13, 1990)

25 MAS product identification analysis for bulk samples from Hunt Valley Marriott (July 17, 1990)

Hatfield, R.L.

26 MAS analysis on dust samples from the Renaissance Tower, project M2246

27 MAS product identification analysis for bulk samples from Renaissance Tower (June 25, 1990)

28 MAS product identification analysis for bulk samples from Renaissance Tower (March 26, 1991)

29 MAS analysis on dust samples from the Prudential Plaza Newark Building, project M1526

30 MAS analysis on dust samples from the Prudential Plaza Newark Building, project M13584

31 MAS product identification analysis for bulk samples from the Prudential Plaza-Newark building (July 13, 1990)

32 MAS product identification analysis for bulk samples from the Prudential Plaza Newark building (July 13, 1990) (M1631)

33 MAS analysis on dust samples from the 5-Penn Center, project M1527

34 MAS analysis on dust samples from the 5-Penn Center, project M13585

35 MAS product identification analysis for bulk samples from the 5-Penn Center, (August 6, 1990)

36 MAS analysis on dust samples from the Embarcadero Center 1, project M1869

37 MAS analysis on dust samples from the Embarcadero Center 1, project M13471

38 MAS product identification analysis for bulk samples from the Embarcadero Center 21, (June 25,1990)

39 MAS analysis on dust samples from the Embarcadero Center 2, project M1304

Hatfield, R.L.

40 MAS analysis on dust samples from the Embarcadero Center 2 building, project M13250

41 MAS analysis on dust samples from the Embarcadero Center 2, project M13470

42 MAS product identification analysis for bulk samples from the Embarcadero Center 2 (June 25, 1990)

43 MAS analysis on dust samples from the Century Center buildings 2200 and 2600 project M2140

44 MAS product identification analysis for bulk samples from the Century Center 2200 building (June 27, 1990)

45 MAS product identification analysis for bulk sample from Century Center 2600 building (June 27, 1990)

46 MAS analysis on dust samples from the First Florida Tower project M1811

47 MAS analysis on dust samples from the First Florida Tower project M

48 MAS project identification analysis for bulk sample from the First Florida Tower (June 25, 1990)

49 MAS project identification analysis for bulk samples from the First Florida Tower (March 22, 1991)

50 MAS analysis on dust samples from the 1100 Milam building, project M2252

51 MAS product identification analysis for bulk samples from the 1100 Milam building (June 25, 1990)

52 MAS product identification analysis for bulk samples from the 1100 Milam building (March 26 1991)

53 MAS analysis on dust samples from the Northland Towers, project M1524

Hatfield, R.L.

54 MAS analysis on dust samples from Northland Towers, project M15197

55 MAS product identification analysis for bulk samples from Northland Towers (July 12, 1990)

56 MAS product identification analysis for bulk samples from Northland Towers (March 27, 1991) Two reports

57 MAS analysis on dust samples from Northwest Financial Center, project M1892

58 MAS product identification analysis for bulk samples from the Northwest Financial Center (June 25, 1990)

59 MAS analysis on dust samples from the Southdale Office Complex, project M3038

60 MAS product identification analysis for bulk samples from the Southdale Office Complex (March 25, 1991)

61 MAS analysis on dust samples from the Twin Towers (Atlanta Gas Light) project M13887

62 MAS product identification analysis for bulk samples from the Twin Tower building (South) June 25, 1990 and March 22, 1991

63 MAS product identification analysis for bulk samples from the Twin Tower building (Gas Light) June 25, 1990 and March 22, 1991.

64 MAS analysis on dust samples from the Prudential Plaza - Denver project M1161

65 MAS product identification analysis for bulk samples from Prudential Plaza - Denver July 12, 1990 and March 22, 1991

66 MAS analysis or dust samples from Chatham Center, project M1303

67 MAS product identification analysis for bulk samples from Chatham Center (August 6, 1990)

Hatfield, R.L.

68 MAS analysis on dust samples collected by Compass Environmental, project M13908

69 MAS analysis of dust samples from Prudential Plaza building, project M13678

70 MAS analysis of dust samples from 5-Penn Center, project M13677

71 MAS analysis of dust samples from Embarcadero Center 1 building, project M13748

72 Dust Sample Evaluation Chart with Attachments

73 Ewing, W.M., Dawson, T.A., et al. "Observations of Settled Asbestos Dust in Buildings", EIA Technical Journal, Summer 1996

74 Letter to Mr. Henry J. Singer of the General Services Administration from Mr. William G. Rosenberg of the EPA dated December 29, 1992

75 Millette, J.R. and Hayes, S.M., Settled Asbestos Dust: Sampling and Analysis, CRC Press Boca Raton, 1994

76 Park, N.W., Walcot, R.J. and Brogan, P.S., "Worker Exposure to Asbestos During Removal of Sprayed Material and Renovation Activity in Buildings Containing Sprayed Material" American Industrial Hygiene Journal, vol. 44, no 6 (1983), pp 428-432

77 Crankshaw, O.S., Perkins, R.L. and Beard, M.E., "An Evaluation of Sampling, Sample Preparation, and Analysis Techniques for Asbestos in Settled Dust in Commercial and Residential Environments" EIA Technical Journal, Winter 1995, pp 10-14

78 Wilmoth, R.C., Powers, J.T., and Millette, J.R., "Observations on Studies Useful to Asbestos O&M Activities" Microscopy vol. 39, 1991 pps. 229-312

79 Crankshaw, Owen S., Research Triangle Institute "Quantitative Evaluation of Relative Effectiveness of Various Methods for the Analysis of Asbestos in Settled Dust" (1995)

Hatfield, R.L.

80 Report under EPA contract 68-03-4006 "Asbestos Fiber Reentrainment During Dry Vacuuming and Wet Cleaning of Asbestos Contaminated Carpet."

81 Comparison of Ariborne Asbestos Levels Determined by Transmission Electron Microscopy (TEM) Using Direct and Indirect Transfer Techniques EPA 560/5-89-004, March 1990

82 W.R. Grace laboratory Reports Index (04/06/61-07/23/64)

83 Markowitz, S.B., et al. "Asbestos Exposure and Fire Fighting" Annals New York Academy of Science, pp. 573-577

84 March 10, 1987, letter from William Cooley to Michael Tucker

85 June 15, 1983 memo from W.R. Wright to T.E. Winkel

86 November 6, 1986 memo from Julie C. Yang to D. Wightman

87 August 13, 1970 memo from R.E. Schneider to H.A. Brown

88 August 7, 1970 memo from H.L. Waxman to H.A. Brown

89 Three Video Tapes of the Friability and Ceiling Tile Lifting Demonstration from the Prudential Plaza Newark, 5-Penn Center and Embarcadero Center One Building taken by Richard Hatfield

Additionally, I may rely on various photographs and/or video tapes taken by Richard L. Hatfield, Law personnel or other consultants during the inspections of these buildings and reports or notes written during or following the building inspections.

Hatfield, R. L.

Compensation

Law Engineering and Environmental Services Inc., will be compensated for my time spent working on this project. The rates Law will invoice of my services are as follows:

Consulting.....	$ 150.00 per hour
Deposition and Trial Testimony.....	$ 225.00 per hour

Associated expenses incurred are invoiced at actual cost.

Prudential Dust Project
Southdale Office Complex

Summary of Results of Analyses by Transmission Electron Microscopy (TEM)

Client Name: Law Engineering/Atlanta

Client Job Number/Name: *11882120.45 Southdale Office Complex*

MAS Project Number: M3038

Client Sample Number	MAS Sample Number	Sample Location	Total Asbestos Structures Counted	Total Asbestos Structures Per Sq. Ft.
1	M3038-1	6th Floor, Suite 674, Metal Desk	5	7.210E+05
2	M3038-2	5th Floor, Back of ceiling tile	0	0.000E+00
3	M3038-3	4th Floor, From heater diffuser	101	1.081E+09
4	M3038-4	3rd Floor, off floor of vacant tenant space, SW corner	91	1.141E+10
5	M3038-5	3rd Floor, SW office	35	1.393E+10
6	M3038-6	2nd Floor, Suite 243	82	1.298E+08
7	M3038-7	1st Floor, carpet, shop	12	3.917E+06

COPY

MATERIALS ANALYTICAL SERVICES

September 22, 1990

Mr. Richard Hatfield
Law Associates, Inc.
114 Town Park Drive
Kennesaw, GA 30144

Dear Mr. Hatfield:

Enclosed are the TEM analyses of the dust samples we performed on your job: 1188212061, Southdale Office Complex, which we received on June 27, 1990.

The samples were labelled:

1. 6th Floor, Suite 674
2. 5th Floor
3. 4th Floor, Suite 425
4. 3rd Floor
5. 3rd Floor FILTER
6. 2nd Floor
7. 1st Floor

Please call our office at your convenience should you have any questions concerning the analyses of your samples.

Sincerely,

William E. Longo, Ph.D.
President

WEL:lac
Enc.
Ref:M3038

3597 Parkway Lane • Suite 250
Norcross, Georgia 30092
(404) 448-3200 FAX (404) 368-8256

CLIENT NAME: Law Associates/Kennesaw

PROJECT NAME/NUMBER: 1188212061
Southdale Office Complex

MAS JOB# M3038

SUMMARY OF DUST SAMPLE LOCATION

SAMPLE #	
1	8" X 8", Metal Desk, 6th Floor, Suite 674.
2	12" X 12", Back of Ceiling Tile, 5th Floor
3	3 1/4" X 10", From Heater Diffuser 4th Floor
4	12" X 12", Off floor of vacant tenant space, 3rd Floor, SW Corner
5	3rd Floor, SW Office.
6	12" X 12", 2nd Floor, Suite 243
7	12" X 12", Carpet, 1st Floor, Shop

MATERIALS ANALYTICAL SERVICES, INC.
3597 PARKWAY LANE, SUITE 250
NORCROSS, GEORGIA 30092
(404) 448-3200

09/15/90

TEM ASBESTOS ANALYSIS REPORT

Client:	LAW ASSOC/ATL	Sample Area	412.0 sq cm
Sample ID:	1.6FL.STE 674		0.444 sq ft
MAS Log Number:	M3038-1	Filter Type:	47MM Plastic
Sample Received:	06/27/89	Filter Area:	1.34E+009 µm2
Sample Due Date:	/ /	Grid Openings:	10
Type Analysis:	DUST	Grids Examined:	2
Microscopist:	RW	Avg Grid Sq. Area:	8372 µm2
Reviewed by:		Tot Area Examined:	83720 µm2
Client Proj/ref:	1188212061*	Screen Mag:	20000X
		Dilution Factor:	1:4.0

	Area Examined		Structures	
	< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
No. Free Chrysotile Fibers:	0	0	0.000E+00	0.000E+00
No. of Chrysotile Bundles:	2	0	2.884E+05	0.000E+00
No. of Chrysotile Clusters:	0	0	0.000E+00	0.000E+00
No. of Chrysotile Matrices:	2	1	2.884E+05	1.442E+05
No. Free Amphibole Fibers:	0	0	0.000E+00	0.000E+00
No. of Amphibole Bundles:	0	0	0.000E+00	0.000E+00
No. of Amphibole Clusters:	0	0	0.000E+00	0.000E+00
No. of Amphibole Matrices:	0	0	0.000E+00	0.000E+00

Total Asbestos Structures/1 sq ft (All): 7.210E+05
Total Asbestos Structures/1 sq ft (≥5): 1.442E+05

Comments : *CLIENT PROJ: SOUTHDALE OFFICE COMPLEX

* The Analytical Sensitivity is calculated on the probability of analyzing one asbestos fiber or structure in the total area examined.

* 0.000 display = Below Analytical Sensitivity

MATERIALS ANALYTICAL SERVICES, INC. Page: 1 of 1

Client: LAW ASSOC/ATL
Sample ID: 1.6FL.STE 674
MAS Log Number: M3038-1
Sample Received: 06/27/89
Sample Due Date: / /
Type Analysis: DUST
Microscopist: RW
Reviewed by:
Client Proj/ref: 1188212061*

Sample Area 412.0 sq cm
0.444 sq ft
Filter Type: 47MM Plastic
Filter Area: 1.34E+009 µm2
Grid Openings: 10
Grids Examined: 2
Avg Grid Sq. Area: 8372 µm2
Tot Area Examined: 83720 µm2
Screen Mag: 20000X
Dilution Factor: 1:4.0

Strc.	Grid Op	Type	Structure	Length Microns	Width Microns	Photo ID
1	1- 1	chr	m	11.00	11.00	
2	1- 2	chr	m	1.60	0.80	
3	1- 3	chr	b	2.30	0.20	M31343
4	2- 3	chr	b	2.00	0.20	
5	2- 4	chr	m	1.50	0.50	

Types

chr - Chrysotile
amo - Amosite
cro - Crocidolite
non - Non-Asbestos
ant - Anthophyllite
tre - Tremolite
act - Actinolite

Structures

f - Fiber
b - Bundle
c - Cluster
m - Matrices

MATERIALS ANALYTICAL SERVICES, INC.
3597 PARKWAY LANE, SUITE 250
NORCROSS, GEORGIA 30092
(404) 448-3200

09/15/90

TEM ASBESTOS ANALYSIS REPORT

Client:	LAW ASSOC/ATL	Sample Area	929.0 sq cm
Sample ID:	2.5TH FLOOR		1.000 sq ft
MAS Log Number:	M3038-2	Filter Type:	47MM Plastic
Sample Received:	06/27/89	Filter Area:	1.34E+009 µm2
Sample Due Date:	/ /	Grid Openings:	10
Type Analysis:	DUST	Grids Examined:	2
Microscopist:	RW	Avg Grid Sq. Area:	7920 µm2
Reviewed by:		Tot Area Examined:	79200 µm2
Client Proj/ref:	1188212061*	Screen Mag:	20000X
		Dilution Factor:	1:1000.0

	Area Examined		Structures	
	< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
No. Free Chrysotile Fibers:	0	0	0.000E+00	0.000E+00
No. of Chrysotile Bundles:	0	0	0.000E+00	0.000E+00
No. of Chrysotile Clusters:	0	0	0.000E+00	0.000E+00
No. of Chrysotile Matrices:	0	0	0.000E+00	0.000E+00
No. Free Amphibole Fibers:	0	0	0.000E+00	0.000E+00
No. of Amphibole Bundles:	0	0	0.000E+00	0.000E+00
No. of Amphibole Clusters:	0	0	0.000E+00	0.000E+00
No. of Amphibole Matrices:	0	0	0.000E+00	0.000E+00

Total Asbestos Structures/1 sq ft (All): 0.000E+00
Total Asbestos Structures/1 sq ft (≥5): 0.000E+00

Comments : *CLIENT PROJ: SOUTHDALE OFFICE COMPLEX

* The Analytical Sensitivity is calculated on the probability of analyzing one asbestos fiber or structure in the total area examined.

* 0.000 display = Below Analytical Sensitivity

MATERIALS ANALYTICAL SERVICES, INC.
3597 PARKWAY LANE, SUITE 250
NORCROSS, GEORGIA 30092
(404) 448-3200

09/15/90

TEM ASBESTOS ANALYSIS REPORT

Client:	LAW ASSOC/ATL	Sample Area	214.0 sq cm
Sample ID:	3.4FL.STE 425		0.230 sq ft
MAS Log Number:	M3038-3	Filter Type:	47MM Plastic
Sample Received:	06/27/89	Filter Area:	1.34E+009 µm2
Sample Due Date:	/ /	Grid Openings:	8
Type Analysis:	DUST	Grids Examined:	2
Microscopist:	RW	Avg Grid Sq. Area:	6806 µm2
Reviewed by:		Tot Area Examined:	54448 µm2
Client Proj/ref:	1188212061*	Screen Mag:	20000X
		Dilution Factor:	1:100.0

	Area Examined		Structures	
	< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
No. Free Chrysotile Fibers:	56	10	5.992E+08	1.070E+08
No. of Chrysotile Bundles:	16	1	1.712E+08	1.070E+07
No. of Chrysotile Clusters:	3	0	3.210E+07	0.000E+00
No. of Chrysotile Matrices:	8	7	8.560E+07	7.490E+07
No. Free Amphibole Fibers:	0	0	0.000E+00	0.000E+00
No. of Amphibole Bundles:	0	0	0.000E+00	0.000E+00
No. of Amphibole Clusters:	0	0	0.000E+00	0.000E+00
No. of Amphibole Matrices:	0	0	0.000E+00	0.000E+00

Total Asbestos Structures/1 sq ft (All): 1.081E+09
Total Asbestos Structures/1 sq ft (≥5): 1.926E+08

Comments : *CLIENT PROJ: SOUTHDALE OFFICE COMPLEX

* The Analytical Sensitivity is calculated on the probability of analyzing one asbestos fiber or structure in the total area examined.

* 0.000 display = Below Analytical Sensitivity

MATERIALS ANALYTICAL SERVICES, INC. Page: 1 of 3

Client:	LAW ASSOC/ATL	Sample Area	214.0 sq cm
Sample ID:	3.4FL.STE 425		0.230 sq ft
MAS Log Number:	M3038-3	Filter Type:	47MM Plastic
Sample Received:	06/27/89	Filter Area:	1.34E+009 µm2
Sample Due Date:	/ /	Grid Openings:	8
Type Analysis:	DUST	Grids Examined:	2
Microscopist:	RW	Avg Grid Sq. Area:	6806 µm2
Reviewed by:		Tot Area Examined:	54448 µm2
Client Proj/ref:	1188212061*	Screen Mag:	20000X
		Dilution Factor:	1:100.0

Strc.	Grid Op	Type	Structure	Length Microns	Width Microns	Photo ID
1	1- 1	chr	b	4.10	0.70	
2		chr	b	3.80	0.20	
3		chr	m	2.50	2.00	
4		chr	f	0.50	0.05	
5		chr	f	1.00	0.02	
6		chr	c	1.50	0.50	
7		chr	b	3.00	0.20	
8		chr	f	0.50	0.02	
9		chr	f	0.50	0.05	
10		chr	m	1.00	0.60	
11		chr	f	2.50	0.05	
12		chr	f	2.00	0.10	
13		chr	f	2.30	0.05	
14		chr	b	2.00	0.20	
15		chr	f	0.50	0.10	
16	1- 2	chr	m	1.70	1.50	
17		chr	f	1.00	0.05	
18		chr	f	1.00	0.05	
19		chr	f	0.70	0.10	
20		chr	m	0.80	0.30	
21		chr	f	0.50	0.02	
22		chr	f	0.50	0.10	
23		chr	f	2.20	0.10	
24		chr	f	0.80	0.05	
25	1- 3	chr	f	0.70	0.05	
26		chr	m	10.00	7.00	
27		chr	b	4.50	0.60	
28		chr	m	8.00	6.00	
29		chr	m	5.50	4.50	
30		chr	f	1.60	0.05	
31		chr	m	1.50	1.20	
32		chr	b	4.00	0.30	

Types

chr - Chrysotile
amo - Amosite
cro - Crocidolite
non - Non-Asbestos
ant - Anthophyllite
tre - Tremolite
act - Actinolite

Structures

f - Fiber
b - Bundle
c - Cluster
m - Matrices

Materials Analytical Services, Inc. Page: 2 of 3

Client: LAW ASSOC/ATL
Sample ID: 3.4FL.STE 425
MAS Log Number: M3038-3
Sample Received: 06/27/89
Sample Due Date: / /
Type Analysis: DUST
Microscopist: RW
Reviewed by:
Client Proj/ref: 1188212061*

Sample Area 214.0 sq cm
0.230 sq ft
Filter Type: 47MM Plastic
Filter Area: 1.34E+009 µm2
Grid Openings: 8
Grids Examined: 2
Avg Grid Sq. Area: 6806 µm2
Tot Area Examined: 54448 µm2
Screen Mag: 20000X
Dilution Factor: 1:100.0

Strc.	Grid Op	Type	Structure	Length Microns	Width Microns	Photo ID
33		chr	f	32.00	0.05	
34		chr	c	4.20	2.00	
35		chr	f	9.00	0.05	
36		chr	f	1.00	0.02	
37		chr	f	0.70	0.05	
38		chr	b	1.20	0.20	
39		chr	f	1.50	0.05	
40		chr	f	1.70	0.05	
41		chr	f	0.70	0.05	
42	1- 4	chr	f	3.00	0.05	
43		chr	b	2.50	0.50	
44		chr	b	2.30	0.40	
45		chr	f	1.60	0.05	
46		chr	f	1.50	0.05	
47		chr	f	1.60	0.05	
48		chr	f	0.80	0.05	
49		chr	m	5.80	2.50	
50		chr	m	6.00	4.50	
51		chr	b	2.00	0.20	
52		chr	f	5.00	0.05	
53		chr	b	1.60	0.20	
54		chr	m	5.00	3.00	
55	2- 1	chr	f	6.00	0.05	
56		chr	f	0.50	0.02	
57		chr	f	1.80	0.10	
58		chr	f	0.50	0.02	
59		chr	b	4.50	0.20	
60		chr	b	1.00	0.20	
61		chr	f	0.50	0.02	
62		chr	f	0.50	0.02	
63		chr	f	1.80	0.10	
64		chr	f	0.50	0.02	
65		chr	m	1.80	1.00	
66		chr	f	11.00	0.10	
67		chr	f	0.70	0.05	
68		chr	c	2.40	1.70	
69		chr	f	5.50	0.05	
70		chr	f	1.80	0.05	
71	2- 2	chr	f	1.50	0.10	

Materials Analytical Services, Inc. Page: 3 of 3

Client: LAW ASSOC/ATL
Sample ID: 3.4FL.STE 425
MAS Log Number: M3038-3
Sample Received: 06/27/89
Sample Due Date: / /
Type Analysis: DUST
Microscopist: RW
Reviewed by:
Client Proj/ref: 1188212061*

Sample Area 214.0 sq cm
0.230 sq ft
Filter Type: 47MM Plastic
Filter Area: 1.34E+009 µm2
Grid Openings: 8
Grids Examined: 2
Avg Grid Sq. Area: 6806 µm2
Tot Area Examined: 54448 µm2
Screen Mag: 20000X
Dilution Factor: 1:100.0

Strc.	Grid Op	Type	Structure	Length Microns	Width Microns	Photo ID
72		chr	b	12.50	0.15	
73		chr	f	2.00	0.05	
74		chr	f	1.60	0.05	
75		chr	f	1.80	0.05	
76		chr	f	0.80	0.02	
77		chr	f	0.50	0.10	
78		chr	f	1.60	0.05	
79		chr	b	1.80	0.20	
80	2- 3	chr	f	0.80	0.05	
81		chr	f	5.40	0.05	
82		chr	b	2.50	0.20	
83		chr	m	6.10	0.50	
84		chr	f	1.60	0.05	
85		chr	f	1.40	0.02	
86		chr	f	1.50	0.10	
87		chr	f	5.50	0.05	
88	2- 4	chr	f	5.00	0.05	
89		chr	f	1.80	0.05	
90		chr	m	2.20	1.80	
91		chr	f	1.70	0.02	
92		chr	f	1.60	0.05	
93		chr	f	0.80	0.02	
94		chr	f	24.00	0.10	
95		chr	b	2.50	0.10	
96		chr	f	0.50	0.10	
97		chr	m	4.00	2.30	
98		chr	f	2.20	0.05	
99		chr	f	4.00	0.05	
100		chr	f	1.50	0.10	
101		chr	f	0.60	0.02	

MATERIALS ANALYTICAL SERVICES, INC.
3597 PARKWAY LANE, SUITE 250
NORCROSS, GEORGIA 30092
(404) 448-3200

09/15/90

TEM ASBESTOS ANALYSIS REPORT

Client:	LAW ASSOC/ATL	Sample Area	155.0 sq cm
Sample ID:	4.3RD FLOOR		0.167 sq ft
MAS Log Number:	M3038-4	Filter Type:	47MM Plastic
Sample Received:	06/27/89	Filter Area:	1.34E+009 µm2
Sample Due Date:	/ /	Grid Openings:	8
Type Analysis:	DUST	Grids Examined:	2
Microscopist:	SF	Avg Grid Sq. Area:	7999 µm2
Reviewed by:		Tot Area Examined:	63992 µm2
Client Proj/ref:	1188212061*	Screen Mag:	20000X
		Dilution Factor:	1:1000.0

	Area Examined		Structures	
	< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
No. Free Chrysotile Fibers:	64	4	8.025E+09	5.016E+08
No. of Chrysotile Bundles:	5	1	6.269E+08	1.254E+08
No. of Chrysotile Clusters:	3	0	3.762E+08	0.000E+00
No. of Chrysotile Matrices:	11	3	1.379E+09	3.762E+08
No. Free Amphibole Fibers:	0	0	0.000E+00	0.000E+00
No. of Amphibole Bundles:	0	0	0.000E+00	0.000E+00
No. of Amphibole Clusters:	0	0	0.000E+00	0.000E+00
No. of Amphibole Matrices:	0	0	0.000E+00	0.000E+00

Total Asbestos Structures/1 sq ft (All): 1.141E+10
Total Asbestos Structures/1 sq ft (≥5): 1.003E+09

Comments : *CLIENT PROJ: SOUTHDALE OFFICE COMPLEX

* The Analytical Sensitivity is calculated on the probability of analyzing one asbestos fiber or structure in the total area examined.

* 0.000 display = Below Analytical Sensitivity

MATERIALS ANALYTICAL SERVICES, INC. Page: 1 of 3

Client: LAW ASSOC/ATL
Sample ID: 4.3RD FLOOR
MAS Log Number: M3038-4
Sample Received: 06/27/89
Sample Due Date: / /
Type Analysis: DUST
Microscopist: SF
Reviewed by:
Client Proj/ref: 1188212061*

Sample Area 155.0 sq cm
0.167 sq ft
Filter Type: 47MM Plastic
Filter Area: 1.34E+009 µm2
Grid Openings: 8
Grids Examined: 2
Avg Grid Sq. Area: 7999 µm2
Tot Area Examined: 63992 µm2
Screen Mag: 20000X
Dilution Factor: 1:1000.0

Strc.	Grid Op	Type	Structure	Length Microns	Width Microns	Photo ID
1	1- 1	chr	m	0.90	0.60	
2		chr	m	1.30	0.70	
3		chr	f	0.50	0.10	
4		chr	f	1.90	0.05	
5		chr	f	1.60	0.05	
6		chr	f	0.50	0.10	
7	1- 2	chr	f	0.50	0.10	
8		chr	f	0.50	0.05	
9		chr	f	1.00	0.05	
10		chr	f	22.00	0.10	
11		chr	f	0.50	0.05	
12		chr	f	0.90	0.05	
13		chr	f	1.20	0.05	
14		chr	f	1.00	0.07	
15		chr	f	1.10	0.07	
16		chr	f	0.70	0.05	
17		chr	m	9.80	9.30	
18	1- 3	chr	f	0.50	0.10	
19		chr	c	1.20	0.40	
20		chr	c	0.70	0.05	
21		chr	f	0.60	0.05	
22		chr	f	0.90	0.03	
23		chr	f	2.00	0.03	
24		chr	f	0.60	0.05	
25		chr	b	1.30	0.15	
26		chr	f	1.40	0.10	
27		chr	f	1.30	0.07	
28		chr	m	1.20	0.50	
29		chr	f	9.40	0.10	
30		chr	f	1.50	0.05	
31		chr	m	20.10	10.20	
32		chr	f	1.30	0.07	

Types

chr - Chrysotile
amo - Amosite
cro - Crocidolite
non - Non-Asbestos
ant - Anthophyllite
tre - Tremolite
act - Actinolite

Structures

f - Fiber
b - Bundle
c - Cluster
m - Matrices

Materials Analytical Services, Inc. Page: 2 of 3

Client: LAW ASSOC/ATL
Sample ID: 4.3RD FLOOR
MAS Log Number: M3038-4
Sample Received: 06/27/89
Sample Due Date: / /
Type Analysis: DUST
Microscopist: SF
Reviewed by:
Client Proj/ref: 1188212061*

Sample Area 155.0 sq cm
0.167 sq ft
Filter Type: 47MM Plastic
Filter Area: 1.34E+009 µm2
Grid Openings: 8
Grids Examined: 2
Avg Grid Sq. Area: 7999 µm2
Tot Area Examined: 63992 µm2
Screen Mag: 20000X
Dilution Factor: 1:1000.0

Strc.	Grid Op	Type	Structure	Length Microns	Width Microns	Photo ID
33	1- 4	chr	b	0.60	0.10	
34		chr	f	0.50	0.10	
35		chr	f	0.60	0.07	
36		chr	f	1.10	0.05	
37		chr	c	2.60	0.50	
38		chr	f	0.90	0.10	
39		chr	f	0.90	0.10	
40		chr	f	1.20	0.10	
41		chr	f	0.90	0.07	
42		chr	f	1.70	0.07	
43		chr	b	1.60	0.15	
44		chr	m	2.20	1.10	
45	2- 1	chr	f	0.60	0.05	
46		chr	f	0.50	0.07	
47		chr	f	0.70	0.05	
48		chr	m	1.20	0.30	
49		chr	f	0.60	0.05	
50		chr	b	0.70	0.20	
51		chr	f	0.90	0.05	
52		chr	f	0.70	0.03	
53		chr	m	1.10	0.07	
54		chr	f	1.00	0.05	
55	2- 2	chr	f	3.90	0.05	
56		chr	f	1.70	0.07	
57		chr	f	6.20	0.07	
58		chr	f	1.80	0.05	
59		chr	m	12.30	9.20	
60		chr	f	0.60	0.10	
61		chr	m	1.80	1.50	
62		chr	f	0.60	0.03	
63		chr	f	0.80	0.10	
64		chr	f	0.70	0.10	
65		chr	f	0.60	0.05	
66		chr	b	28.80	0.03	
67		chr	f	0.60	0.07	
68		chr	f	1.70	0.07	
69		chr	f	1.50	0.07	
70	2- 3	chr	f	0.60	0.05	
71		chr	m	1.20	0.60	

Materials Analytical Services, Inc. Page: 3 of 3

Client: LAW ASSOC/ATL
Sample ID: 4.3RD FLOOR
MAS Log Number: M3038-4
Sample Received: 06/27/89
Sample Due Date: / /
Type Analysis: DUST
Microscopist: SF
Reviewed by:
Client Proj/ref: 1188212061*

Sample Area 155.0 sq cm
0.167 sq ft
Filter Type: 47MM Plastic
Filter Area: 1.34E+009 µm2
Grid Openings: 8
Grids Examined: 2
Avg Grid Sq. Area: 7999 µm2
Tot Area Examined: 63992 µm2
Screen Mag: 20000X
Dilution Factor: 1:1000.0

Strc.	Grid Op	Type	Structure	Length Microns	Width Microns	Photo ID
72		chr	f	0.60	0.10	
73		chr	f	5.40	0.07	
74		chr	f	1.20	0.07	
75		chr	f	0.70	0.05	
76		chr	f	0.50	0.10	
77		chr	f	0.90	0.10	
78		chr	f	0.60	0.05	
79		chr	f	0.50	0.07	
80		chr	f	0.50	0.07	
81		chr	f	0.60	0.05	
82		chr	f	2.20	0.05	
83	2- 4	chr	m	2.10	0.60	
84		chr	m	2.70	1.20	
85		chr	f	0.50	0.05	
86		chr	f	3.00	0.05	
87		chr	f	0.80	0.07	
88		chr	b	2.50	0.15	
89		chr	f	1.30	0.10	
90		chr	f	1.70	0.07	
91		chr	m	0.90	0.60	

MATERIALS ANALYTICAL SERVICES, INC.
3597 PARKWAY LANE, SUITE 250
NORCROSS, GEORGIA 30092
(404) 448-3200

09/15/90

TEM ASBESTOS ANALYSIS REPORT

Client:	LAW ASSOC/ATL	Sample Area	58.0 sq cm
Sample ID:	5.3FL.FILTER		0.062 sq ft
MAS Log Number:	M3038-5	Filter Type:	47MM Plastic
Sample Received:	06/27/89	Filter Area:	1.34E+009 µm2
Sample Due Date:	/ /	Grid Openings:	10
Type Analysis:	DUST	Grids Examined:	2
Microscopist:	WS	Avg Grid Sq. Area:	8145 µm2
Reviewed by:		Tot Area Examined:	81450 µm2
Client Proj/ref:	1188212061*	Screen Mag:	20000X
		Dilution Factor:	1:1500.0

	Area Examined		Structures	
	< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
No. Free Chrysotile Fibers:	26	3	1.035E+10	1.194E+09
No. of Chrysotile Bundles:	5	0	1.990E+09	0.000E+00
No. of Chrysotile Clusters:	0	0	0.000E+00	0.000E+00
No. of Chrysotile Matrices:	0	1	0.000E+00	3.980E+08
No. Free Amphibole Fibers:	0	0	0.000E+00	0.000E+00
No. of Amphibole Bundles:	0	0	0.000E+00	0.000E+00
No. of Amphibole Clusters:	0	0	0.000E+00	0.000E+00
No. of Amphibole Matrices:	0	0	0.000E+00	0.000E+00

Total Asbestos Structures/1 sq ft (All): 1.393E+10
Total Asbestos Structures/1 sq ft (≥5): 1.592E+09

Commerts : *CLIENT PROJ: SOUTHDALE OFFICE COMPLEX

* The Analytical Sensitivity is calculated on the probability of analyzing one asbestos fiber or structure in the total area examined.

* 0.000 display = Below Analytical Sensitivity

MATERIALS ANALYTICAL SERVICES, INC. Page: 1 of 2

Client: LAW/KENN
Sample ID: 5.3FL.FILTER
MAS Log Number: M3038-5
Sample Received: 06/27/89
Sample Due Date: / /
Type Analysis: DUST
Microscopist: WS
Reviewed by:
Client Proj/ref: 1188212061*

Sample Area 58.0 sq cm
0.062 sq ft
Filter Type: 47MM Plastic
Filter Area: 1.34E+009 µm2
Grid Openings: 10
Grids Examined: 2
Avg Grid Sq. Area: 8145 µm2
Tot Area Examined: 81450 µm2
Screen Mag: 20000X
Dilution Factor: 1:1500.0

Strc.	Grid Op	Type	Structure	Length Microns	Width Microns	Photo ID
1	1- 1	chr	f	2.00	0.01	
2		chr	f	1.20	0.01	
3		chr	f	0.80	0.01	
4		chr	b	1.20	0.18	
5	1- 2	chr	b	0.90	0.15	
6		chr	f	1.00	0.02	
7		chr	f	1.50	0.02	
8		chr	m	5.00	0.80	
9	1- 3	chr	f	1.70	0.04	
10		chr	b	2.80	0.30	
11		chr	f	1.20	0.05	
12		chr	f	0.60	0.02	
13		chr	f	0.80	0.02	
14		chr	f	0.70	0.01	
15	1- 4	chr	b	3.50	0.30	
16		chr	f	0.80	0.01	
17		chr	f	0.60	0.01	
18		chr	f	7.50	0.08	
19	1- 5	chr	f	1.50	0.08	
20		chr	f	2.00	0.08	
21		chr	f	5.00	0.08	
22	2- 1	chr	f	0.70	0.08	
23		chr	f	1.00	0.05	
24	2- 2	chr	f	3.50	0.02	
25		chr	f	1.00	0.02	
26		chr	f	0.60	0.02	
27	2- 3	chr	f	7.20	0.08	
28		chr	f	3.70	0.10	
29	2- 4	chr	f	1.10	0.08	
30		chr	f	1.00	0.05	
31		chr	f	3.00	0.08	
32	2- 5	chr	f	1.80	0.08	

Types

chr - Chrysotile
amo - Amosite
cro - Crocidolite
non - Non-Asbestos
ant - Anthophyllite
tre - Tremolite
act - Actinolite

Structures

f - Fiber
b - Bundle
c - Cluster
m - Matrices

Materials Analytical Services, Inc. Page: 2 of 2

Client:	LAW ASSOC/ATL	Sample Area	58.0 sq cm
Sample ID:	5.3FL.FILTER		0.062 sq ft
MAS Log Number:	M3038-5	Filter Type:	47MM Plastic
Sample Received:	06/27/89	Filter Area:	1.34E+009 µm2
Sample Due Date:	/ /	Grid Openings:	10
Type Analysis:	DUST	Grids Examined:	2
Microscopist:	WS	Avg Grid Sq. Area:	8145 µm2
Reviewed by:		Tot Area Examined:	81450 µm2
Client Proj/ref:	1188212061*	Screen Mag:	20000X
		Dilution Factor:	1:1500.0

Strc.	Grid Op	Type	Structure	Length Microns	Width Microns	Photo ID
33		chr	b	1.50	0.18	
34		chr	f	0.70	0.05	
35		chr	f	1.10	0.05	

MATERIALS ANALYTICAL SERVICES, INC.
3597 PARKWAY LANE, SUITE 250
NORCROSS, GEORGIA 30092
(404) 448-3200

09/20/90

TEM ASBESTOS ANALYSIS REPORT

Client:	LAW/KENN	Sample Area	929.0 sq cm 1.000 sq ft
Sample ID:	6.2ND FLOOR		
MAS Log Number:	M3038-6	Filter Type:	47MM Plastic
Sample Received:	06/27/89	Filter Area:	1.34E+009 µm2
Sample Due Date:	/ /	Grid Openings:	10
Type Analysis:	DUST	Grids Examined:	2
Microscopist:	MM	Avg Grid Sq. Area:	8464 µm2
Reviewed by:		Tot Area Examined:	84640 µm2
Client Proj/ref:	1188212061*	Screen Mag:	20000X
		Dilution Factor:	1:100.0

	Area Examined		Structures	
	< 5 µm	≥ 5 µm	< 5 µm	≥ 5 µm
No. Free Chrysotile Fibers:	58	10	9.182E+07	1.583E+07
No. of Chrysotile Bundles:	4	3	6.333E+06	4.750E+06
No. of Chrysotile Clusters:	0	1	0.000E+00	1.583E+06
No. of Chrysotile Matrices:	5	1	7.916E+06	1.583E+06
No. Free Amphibole Fibers:	0	0	0.000E+00	0.000E+00
No. of Amphibole Bundles:	0	0	0.000E+00	0.000E+00
No. of Amphibole Clusters:	0	0	0.000E+00	0.000E+00
No. of Amphibole Matrices:	0	0	0.000E+00	0.000E+00

Total Asbestos Structures/1 sq ft (All): 1.298E+08
Total Asbestos Structures/1 sq ft (≥5): 2.375E+07

Comments : *CLIENT PROJ: SOUTHDALE OFFICE COMPLEX

* The Analytical Sensitivity is calculated on the probability of analyzing one asbestos fiber or structure in the total area examined.

* 0.000 display = Below Analytical Sensitivity

MATERIALS ANALYTICAL SERVICES, INC. Page: 1 of 3

Client: LAW/KENN
Sample ID: 6.2ND FLOOR
MAS Log Number: M3038-6
Sample Received: 06/27/89
Sample Due Date: / /
Type Analysis: DUST
Microscopist: MM
Reviewed by:
Client Proj/ref: 1188212061*

Sample Area 929.0 sq cm
1.000 sq ft
Filter Type: 47MM Plastic
Filter Area: 1.34E+009 µm2
Grid Openings: 10
Grids Examined: 2
Avg Grid Sq. Area: 8464 µm2
Tot Area Examined: 84640 µm2
Screen Mag: 20000X
Dilution Factor: 1:100.0

Strc.	Grid Op	Type	Structure	Length Microns	Width Microns	Photo ID
1	1- 1	chr	f	1.40	0.02	
2		chr	f	2.00	0.15	
3		chr	f	0.70	0.02	
4		chr	f	28.00	0.10	
5		chr	f	2.60	0.10	
6	1- 2	chr	f	1.10	0.10	
7		chr	f	2.00	0.10	
8		chr	f	19.00	0.10	
9		chr	f	2.50	0.10	
10		chr	f	14.00	0.10	
11		chr	m	1.70	0.50	
12		chr	f	0.60	0.02	
13		chr	b	1.00	0.20	
14		chr	m	4.60	3.00	
15		chr	f	0.60	0.10	
16	1- 3	chr	b	5.60	0.70	
17		chr	f	1.30	0.10	
18		chr	f	2.00	0.02	
19	1- 4	chr	f	0.50	0.10	
20		chr	m	3.70	0.60	
21		chr	f	0.70	0.10	
22		chr	f	1.10	0.10	
23		chr	f	0.60	0.10	
24		chr	f	1.20	0.10	
25		chr	f	0.60	0.10	
26	1- 5	chr	m	1.70	0.80	
27		chr	f	1.00	0.10	
28		chr	f	8.60	0.10	
29		chr	f	1.80	0.10	
30		chr	f	1.30	0.10	
31	2- 1	chr	f	0.80	0.10	
32		chr	b	1.80	0.20	

Types

chr - Chrysotile
amo - Amosite
cro - Crocidolite
non - Non-Asbestos
ant - Anthophyllite
tre - Tremolite
act - Actinolite

Structures

f - Fiber
b - Bundle
c - Cluster
m - Matrices

Materials Analytical Services, Inc. Page: 2 of 3

Client: LAW/KENN
Sample ID: 6.2ND FLOOR
MAS Log Number: M3038-6
Sample Received: 06/27/89
Sample Due Date: / /
Type Analysis: DUST
Microscopist: MM
Reviewed by:
Client Proj/ref: 1188212061*

Sample Area 929.0 sq cm
1.000 sq ft
Filter Type: 47MM Plastic
Filter Area: 1.34E+009 µm2
Grid Openings: 10
Grids Examined: 2
Avg Grid Sq. Area: 8464 µm2
Tot Area Examined: 84640 µm2
Screen Mag: 20000X
Dilution Factor: 1:100.0

Strc.	Grid Op	Type	Structure	Length Microns	Width Microns	Photo ID
33		chr	f	1.80	0.10	
34		chr	f	11.00	0.10	
35		chr	f	5.60	0.10	
36		chr	f	1.00	0.10	
37		chr	f	0.70	0.10	
38		chr	f	0.70	0.10	
39		chr	f	1.70	0.10	
40		chr	f	8.70	0.10	
41		chr	f	1.80	0.10	
42		chr	f	1.40	0.10	
43	2- 2	chr	f	2.20	0.10	
44		chr	f	1.80	0.10	
45		chr	f	2.30	0.10	
46		chr	b	5.70	0.10	
47		chr	f	2.00	0.40	
48		chr	f	1.50	0.10	
49		chr	f	1.10	0.10	
50		chr	f	4.50	0.10	
51		chr	f	14.50	0.10	
52	2- 3	chr	f	2.00	0.10	
53		chr	b	2.30	0.50	
54		chr	f	2.00	0.20	
55		chr	m	2.40	1.50	
56		chr	b	0.90	0.20	
57		chr	b	8.40	0.40	
58		chr	c	26.00	8.30	
59		chr	f	3.80	0.10	
60		chr	f	1.00	0.05	
61	2- 4	chr	f	1.00	0.10	
62		chr	f	4.20	0.10	
63		chr	f	2.00	0.10	
64		chr	f	14.60	0.20	
65		chr	f	4.00	0.10	
66		chr	f	1.30	0.10	
67		chr	f	0.80	0.10	
68		chr	f	0.70	0.10	
69		chr	f	1.50	0.10	
70		chr	f	1.80	0.10	
71		chr	f	2.00	0.10	

Materials Analytical Services, Inc. Page: 3 of 3

Client: LAW/KENN
Sample ID: 6.2ND FLOOR
MAS Log Number: M3038-6
Sample Received: 06/27/89
Sample Due Date: / /
Type Analysis: DUST
Microscopist: MM
Reviewed by:
Client Proj/ref: 1188212061*

Sample Area 929.0 sq cm
1.000 sq ft
Filter Type: 47MM Plastic
Filter Area: 1.34E+009 µm2
Grid Openings: 10
Grids Examined: 2
Avg Grid Sq. Area: 8464 µm2
Tot Area Examined: 84640 µm2
Screen Mag: 20000X
Dilution Factor: 1:100.0

Strc.	Grid Op	Type	Structure	Length Microns	Width Microns	Photo ID
72		chr	f	1.70	0.10	
73		chr	f	0.80	0.02	
74	2- 5	chr	f	2.00	0.10	
75		chr	f	1.60	0.10	
76		chr	f	3.00	0.10	
77		chr	m	8.00	0.50	
78		chr	f	9.00	0.10	
79		chr	f	1.00	0.10	
80		chr	f	0.90	0.10	
81		chr	f	0.60	0.10	
82		chr	f	3.00	0.10	

MATERIALS ANALYTICAL SERVICES, INC.
3597 PARKWAY LANE, SUITE 250
NORCROSS, GEORGIA 30092
(404) 448-3200

09/15/90

TEM ASBESTOS ANALYSIS REPORT

Client:	LAW ASSOC/ATL	Sample Area	929.0 sq cm
Sample ID:	7.1ST FLOOR		1.000 sq ft
MAS Log Number:	M3038-7	Filter Type:	47MM Plastic
Sample Received:	06/27/89	Filter Area:	1.34E+009 μm2
Sample Due Date:	/ /	Grid Openings:	10
Type Analysis:	DUST	Grids Examined:	2
Microscopist:	MF Mark R. Franklin	Avg Grid Sq. Area:	8210 μm2
Reviewed by:		Tot Area Examined:	82100 μm2
Client Proj/ref:	1188212061*	Screen Mag:	20000X
		Dilution Factor:	1:20.0

	Area Examined		Structures	
	< 5 μm	≥ 5 μm	< 5 μm	≥ 5 μm
No. Free Chrysotile Fibers:	8	0	2.611E+06	0.000E+00
No. of Chrysotile Bundles:	2	0	6.529E+05	0.000E+00
No. of Chrysotile Clusters:	0	0	0.000E+00	0.000E+00
No. of Chrysotile Matrices:	2	0	6.529E+05	0.000E+00
No. Free Amphibole Fibers:	0	0	0.000E+00	0.000E+00
No. of Amphibole Bundles:	0	0	0.000E+00	0.000E+00
No. of Amphibole Clusters:	0	0	0.000E+00	0.000E+00
No. of Amphibole Matrices:	0	0	0.000E+00	0.000E+00

Total Asbestos Structures/1 sq ft (All): 3.917E+06
Total Asbestos Structures/1 sq ft (≥5): 0.000E+00

Comments : *CLIENT PROJ: SOUTHDALE OFFICE COMPLEX

* The Analytical Sensitivity is calculated on the probability of analyzing one asbestos fiber or structure in the total area examined.

* 0.000 display = Below Analytical Sensitivity

MATERIALS ANALYTICAL SERVICES, INC. Page: 1 of 1

Client:	LAW ASSOC/ATL	Sample Area	929.0 sq cm
Sample ID:	7.1ST FLOOR		1.000 sq ft
MAS Log Number:	M3038-7	Filter Type:	47MM Plastic
Sample Received:	06/27/89	Filter Area:	1.34E+009 µm2
Sample Due Date:	/ /	Grid Openings:	10
Type Analysis:	DUST	Grids Examined:	2
Microscopist:	MF Mark R. Fragale	Avg Grid Sq. Area:	8210 µm2
Reviewed by:		Tot Area Examined:	82100 µm2
Client Proj/ref:	1188212061*	Screen Mag:	20000X
		Dilution Factor:	1:20.0

Strc.	Grid Op	Type	Structure	Length Microns	Width Microns	Photo ID
1	1- 1	chr	b	2.30	0.50	
2	1- 2	chr	f	0.50	0.10	
3		chr	f	2.00	0.10	
4		chr	f	1.20	0.20	
5	1- 4	chr	f	1.50	0.10	
6		chr	b	1.50	0.30	
7		chr	f	1.80	0.10	
8	1- 5	chr	f	1.40	0.10	
9		chr	f	0.60	0.10	
10	2- 2	chr	m	3.80	2.00	
11		chr	m	3.20	2.30	
12	2- 5	chr	f	1.00	0.10	

Types

chr - Chrysotile
amo - Amosite
cro - Crocidolite
non - Non-Asbestos
ant - Anthophyllite
tre - Tremolite
act - Actinolite

Structures

f - Fiber
b - Bundle
c - Cluster
m - Matrices

MATERIALS ANALYTICAL SERVICES

CHAIN-OF-CUSTODY

Company: Law Assoc/ Atl MAS Job No: M3038

Contact: V. Hernandez Date: 6/27/89

Phone No: Client P.O.: 11882/2061

TYPE OF ANALYSIS

TEM ( ) Level I ( ) LEVEL II ( ) AHERA ( )
WATER ( ) DUST (X) BULK ( )

OTHER: Requested T.A.T.:

Due Date:

Sample Number(s):

1) 1 6th Floor suite 674	11)
2) 2. 5th Floor	12)
3) 3. 4th Floor Suite 425	13)
4) 4. 3rd Floor	14)
5) 5. 3rd Floor FILTER	15)
6) 6 2nd Floor	16)
7) 7. 1st Floor	17)
8)	18)
9)	19)
10)	20)

Samples Received By: [signature] Date: 6/27/89
Condition of Samples: [initials]

Sample Preparation: R. Olson Date: ~~4-30-90~~
Sample Analysis: R White, [signature], M. [signature], [signature] Date: 9-6-90, 9-7-90, 9-11-90
Report(s) Sent By: Mailed [signature] Dabbs Date: 9/27/90
Sample(s) ~~Shipped By~~ disposed of by: R. Olson Date: 1-14-91
Samples Received By Client:
Date Received By Client:
(Please sign and return to MAS upon
receipt of samples.)

3597 Parkway Lane • Suite 250
Norcross, Georgia 30092
(404) 448-3200

PROJECT NAME: Law Boxes / Kenosha

PROJECT NUMBER: M3038

TYPE OF SAMPLES: DUST

DATE DUE: —

DATE OF PREP: 8-30-90

PREP TECH: [signature]

PREP SOP #: MT-003

LAB I.D. #	CLIENT I.D. #	FILTER TYPE	VOLUME FILTERED NO. 1	VOLUME FILTERED NO. 2	VOLUME FILTERED NO. 3	TOTAL SUSPENSION VOLUME	COMMENTS
M3038-1	1 4th floor	47mm MCE	2ml	20		100ml	
M3038-2	2 5th floor	"	.01ml	.1ml			SD.
M3038-3	3 4th floor	"	.1ml	1ml			
M3038-4	4 3rd floor	"	.1ml	1ml			
M3038-5	5 3rd floor filter	47mm MCE	1ml	.1ml		150ml (5½cm X 10½cm)	Clean by the Chatfield Method of wipe wash
M3038-6	6 2nd floor	"	.1ml	1ml		100ml	
M3038-7	7 1st floor	"	.5ml	5ml			
———	Lab BL (1-4, 6-7)	"					Box 89
———	Lab BL (5)	47mm MCE				200ml	Box 89
CD	Standard dilution: 1ml original + 99ml [illegible] H2O						

CHAIN OF CUSTODY SHEET

JOB NAME Southdale Office Complex

JOB NUMBER 118821206.1

DATE June 27, 1989

TRANSFER REQUESTED BY V. Hernandez

Of Law Associates Inc.

Date June 27, 1989

Transferred to MAS (B. Longo)

FIELD COLLECTION				FIRST TRANSFER			SECOND TRANSFER				THIRD TRANSFER			
Sample No.	Sample Location	Init.	Date	LAW ASSOC LAB or other	Date Log In	Init.	Trans. To	Mode Trans.	Date	Recd. By	TRANS TO	Mode Trans.	Date	Init.
5	3rd Floor FILTER	VNH	2/9/89	MAS	6/27/89	RR								
B1	6th Floor Suite 6074	↓	↓	↓	↓	↓								
B2	5th Floor													
B3	4th Floor Suite 425													
B4	3rd floor													
6	2nd floor													
7	1ST FLOOR													

PREPPED DUST SAMPLE CASSETTE LABELS:

MAS JOB NUMBER: M3038

CLIENT JOB NUMBER: 11882120 61

SAMPLE NUMBER: LABEL:

1- 8"X8" 2 l/m 60 sec top of metal desk 11882120 61 Southdale Office Complex 2/8/89 6th floor Suite #674 ①

2- ② Back of a ceiling tile 5th floor Southdale Office Complex 2/8/89 2 lpm 60 sec 12X12

3- 11882120.61 Southdale Office Complex 4th floor 4/5 from heater defuser ③ 2 l/m 60 sec 3/4 X 10

4- 11882120 61 Southdale Office Complex ④ 2 l/m 60 sec off floor of vacant tenant space 3rd floor SW corner 12X12 60 sec. 2 l/m

5- Southdale Office Complex LAI # 11882120 61 2/9/89 UNA "Dust Sample" ⑤ 3rd floor SW Office

6- 1182120 61 Southdale Office Complex 2nd floor Suite 243 60 sec. 12X12 2 lpm ⑥

7- 11821206 1 Southdale Office Complex ⑦ 60 sec 2 lpm 2/9/89 VNH Carpet 1st floor shop 12X12.

MATERIALS ANALYTICAL SERVICES, INC. PAGE # 112

DUST SHEET

Client: Law Assoc/ATC

Sample ID: 1

MAS Job Number: M 3038-1

Date Sample Analyzed: 9-12-90

Number of Openings/Grids Counted: 1012

Grid Accepted, 600X: (Yes) No

Percent Loading: 6 %

Analyst: R white

Dilution Factor: 1: 4

Accelerating Voltage: 100 KV

Indicated Mag: 25KX

Screen Mag: 20KX

Microscope Number: 1 2 (3) 4

Filter Type: (MCE), PC, Other =

Filter Size: 25mm, 37mm, (47mm)

Filter Pore Size (um): 0.22

Grid Opening: 1) 92 um x 90 um

2) 92 um x 92 um

Calculating Results For Verbal Issue:

Counting Rules: (AHERA) LEVEL II

Effective Filter Area in mm^2:	(A)	1339
Number of Grid Openings Examined:	(B)	10
Average Grid Opening Area in mm^2:	(C)	.008372
Volume of Liquid Filtered in ml:	(D)	25 ml
Area Sampled in Sq. Ft.:	(E)	.444
Number of Asbestos Structures Counted:	(F)	5

STRUCTURES PER SQ. FT. FORMULA:

$$\frac{A}{B * C} * \frac{100}{D} * \frac{1}{E} * F = \text{(asbestos structures per sq. ft.)}$$

Calculations:

$$\frac{1339}{10 * .008372} * \frac{100}{25} * \frac{1}{.444} * 5 = 7.20 \times 10^5$$

CLIENT: L Rex Assoc / ATC

PAGE # 2 12

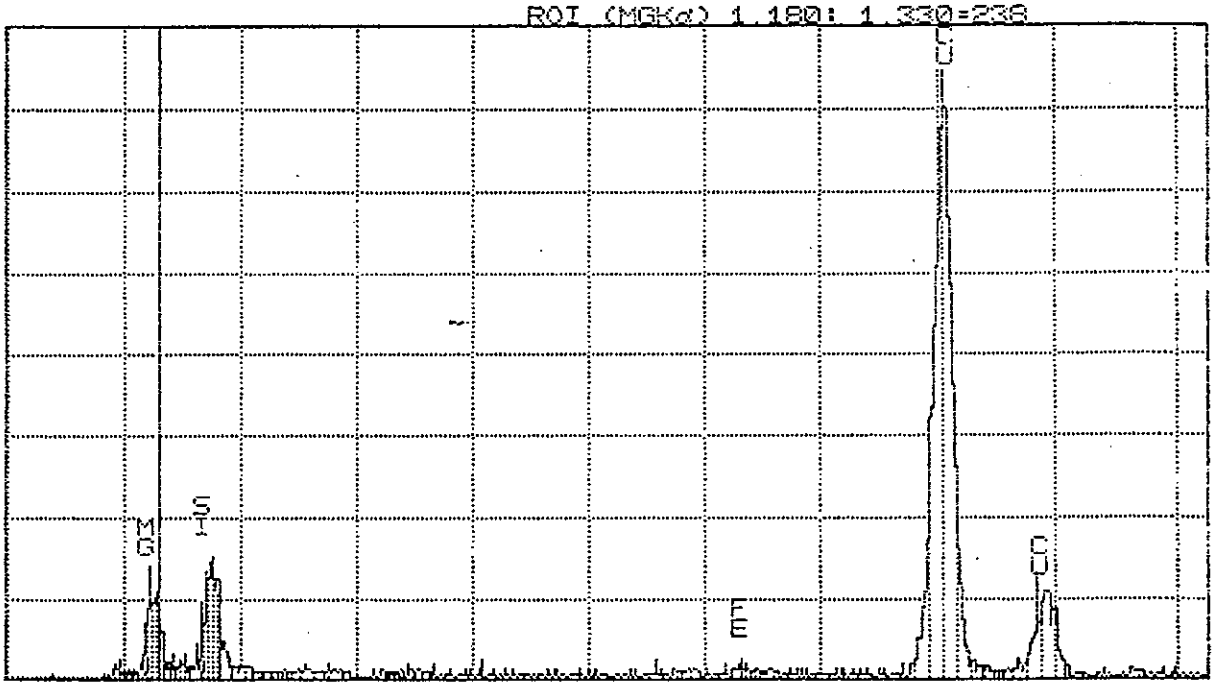
MAS JOB NUMBER: M 3638-1

STR. #	GRID # SQUARE #	TYPE C, A	STRUCTURE F, B, C, M, N	LENGTH MICRONS	WIDTH MICRONS	CONFIRMATION MORPH.	SAED.	EDS.
1	1-1	C	M	11.0	11.0	✓	✓	P.O.
2	2	C	M	1.6	0.8	✓	✓	
3	3	C	B	2.3	0.2	✓	m31343	
	4		NSD					
	5		NSD					
	2-1		NSD					
	2		NSD					
4	3	C	B	2.0	0.2	✓	✓	
5	4	C	M	1.5	0.5	✓	✓	
	5		NSD					

MATERIALS ANALYTICAL SERVICES WED 12-SEP-90 07:50

Cursor: 1.300keV = 17 ROI (SiKα) 1.660: 1.810=283

ROI (MgKα) 1.180: 1.330=238



0.000 VFS = 128 10.240

21 M3038-1, CHRYSOTILE

MATERIALS ANALYTICAL SERVICES, INC.
DUST SHEET

PAGE # 1 / 2

Client: LAW Assoc / ATC
Sample ID: 2
MAS Job Number: M 3038-2
Date Sample Analyzed: 9-7-90
Number of Openings/Grids Counted: 10 / 2
Grid Accepted, 600X: (Yes) No
Percent Loading: 10 %
Analyst: R White
Dilution Factor: 1: 1000

Accelerating Voltage: 100 KV
Indicated Mag: 25KX
Screen Mag: 20KX
Microscope Number: 1 2 (3) 4
Filter Type: (MCE) PC, Other =
Filter Size: 25mm, 37mm, (47mm)
Filter Pore Size (um): 0.22
Grid Opening: 1) 90 um x 86 um
2) 90 um x 90 um

Calculating Results For Verbal Issue:

Counting Rules: (AHERA) LEVEL II

Effective Filter Area in mm^2:	(A)	1339
Number of Grid Openings Examined:	(B)	10
Average Grid Opening Area in mm^2:	(C)	.007920
Volume of Liquid Filtered in ml:	(D)	.1 ml
Area Sampled in Sq. Ft.:	(E)	1
Number of Asbestos Structures Counted:	(F)	Ø

STRUCTURES PER SQ. FT. FORMULA:

$$\frac{A}{B * C} * \frac{100}{D} * \frac{1}{E} * F = \text{(asbestos structures per sq. ft.)}$$

Calculations:

$$\frac{1339}{10 * .007920} * \frac{100}{.1} * \frac{1}{1} * Ø = Ø$$

CLIENT: LAW ASSOC/ATL PAGE # 2 / 2

MAS JOB NUMBER: M 3038-2

STR. #	GRID # SQUARE #	TYPE C, A	STRUCTURE F, B, C, M, N	LENGTH MICRONS	WIDTH MICRONS	CONFIRMATION MORPH.	SAED.	EDS.
	1-1		NSD					
	2		NSD					
	3		NSD					
	4		NSD					
	5		NSD					
	2-1		NSD					
	2		NSD					
	3		NSD					
	4		NSD					
	5		NSD					

MATERIALS ANALYTICAL SERVICES, INC.
DUST SHEET

PAGE # 115

Client: Libby ASBOC/BBRC
Sample ID: 3
MAS Job Number: M3038-3
Date Sample Analyzed: 9-14-90
Number of Openings/Grids Counted: 8/12
Grid Accepted, 600X: (Yes) No
Percent Loading: 8 %
Analyst: R White
Dilution Factor: 1: 100

Accelerating Voltage: 100 KV
Indicated Mag: 25KX
Screen Mag: 20KX
Microscope Number: 1 2 (3) 4
Filter Type: (MCE), PC, Other =
Filter Size: 25mm, 37mm, (47mm)
Filter Pore Size (um): 0.22
Grid Opening: 1) 82 um x 82 um
2) 84 um x 82 um

Calculating Results For Verbal Issue:

Counting Rules: (AHERA) LEVEL II

Effective Filter Area in mm^2:	(A)	1339
Number of Grid Openings Examined:	(B)	8
Average Grid Opening Area in mm^2:	(C)	.006806
Volume of Liquid Filtered in ml:	(D)	1 ml
Area Sampled in Sq. Ft.:	(E)	0.23
Number of Asbestos Structures Counted:	(F)	101

STRUCTURES PER SQ. FT. FORMULA:

$$\frac{A}{B * C} * \frac{100}{D} * \frac{1}{E} * F = \text{(asbestos structures per sq. ft.)}$$

Calculations:

$$\frac{1339}{8 * .006806} * \frac{100}{1} * \frac{1}{0.23} * 101 = 1.08 \times 10^9$$

CLIENT: Law Assoc/ ATL

PAGE # 215

MAS JOB NUMBER: M 3038-3

STR. #	GRID # SQUARE #	TYPE C, A	STRUCTURE F, B, C, M, N	LENGTH MICRONS	WIDTH MICRONS	CONFIRMATION MORPH.	CONFIRMATION SAED.	CONFIRMATION EDS.
1	1-1	C	B	4.1	0.7	✓	✓	P.O.
2		C	B	3.8	0.2	✓	✓	
3		C	M	2.5	2.0	✓	✓	
4		C	F	0.5	0.05	✓	✓	
5		C	F	1.0	0.02	✓	✓	
6		C	C	1.5	0.5	✓	✓	
7		C	B	3.0	0.2	✓	✓	
8		C	F	0.5	0.02	✓	✓	
9		C	F	0.5	0.05	✓	✓	
10		C	M	1.0	0.6	✓	✓	P.O.
11		C	F	2.5	0.05	✓	✓	
12		C	F	2.0	0.1	✓	✓	
13		C	F	2.3	0.05	✓	✓	
14		C	B	2.0	0.2	✓	✓	
15		C	F	0.5	0.1	✓	✓	
16	2	C	M	1.7	1.5	✓	✓	
17		C	F	1.0	0.05	✓	✓	
18		C	F	1.0	0.05	✓	✓	
19		C	F	0.7	0.1	✓	✓	
20		C	M	0.8	0.3	✓	✓	P.O.
21		C	F	0.5	0.02	✓	✓	
22		C	F	0.5	0.1	✓	✓	
23		C	F	2.2	0.1	✓	✓	
24		C	F	0.8	0.05	✓	✓	
25	3	C	F	0.7	0.05	✓	✓	
26		C	M	10.0	7.0	✓	✓	
27		C	B	4.5	0.6	✓	✓	
28		C	M	8.0	6.0	✓	✓	
29		C	M	5.5	4.5	✓	✓	
30		C	F	1.6	0.05	✓	✓	P.O.

CLIENT: Law Assoc Inc. PAGE # 315

MAS JOB NUMBER: M 3038-3

STR. #	GRID # SQUARE #	TYPE C, A	STRUCTURE F, B, C, M, N	LENGTH MICRONS	WIDTH MICRONS	CONFIRMATION MORPH.	SAED.	EDS.
31		C	M	1.5	1.2	✓	✓	
32		C	B	4.0	0.3	✓	✓	
33		C	F	32.0	0.05	✓	✓	
34		C	C	4.2	2.0	✓	✓	
35		C	F	9.0	0.05	✓	✓	
36		C	F	1.0	0.02	✓	✓	
37		C	F	0.7	0.05	✓	✓	
38		C	B	1.2	0.2	✓	✓	
39		C	F	1.5	0.05	✓	✓	
40		C	F	1.7	0.05	✓	✓	P.O.
41		C	F	0.7	0.05	✓	✓	
42	4	C	F	3.0	0.05	✓	✓	
43		C	B	2.5	0.5	✓	✓	
44		C	B	2.3	0.4	✓	✓	
45		C	F	1.6	0.05	✓	✓	
46		C	F	1.5	0.05	✓	✓	
47		C	F	1.6	0.05	✓	✓	
48		C	F	0.8	0.05	✓	✓	
49		C	M	5.8	2.5	✓	✓	
50		C	M	6.0	4.5	✓	✓	P.O.
51		C	B	2.0	0.2	✓	✓	
52		C	F	5.0	0.05	✓	✓	
53		C	B	1.6	0.2	✓	✓	
54		C	M	5.0	3.0	✓	✓	
55	2-1	C	F	6.0	0.05	✓	✓	
56		C	F	0.5	0.02	✓	✓	
57		C	F ~~1.8~~	1.8	0.1	✓	✓	
58		C	F	0.5	0.02	✓	✓	
59		C	B	4.5	0.2	✓	✓	
60		C	B	1.0	0.2	✓	✓	P.O.

CLIENT: Law Assoc / ARL

PAGE # 4 15

MAS JOB NUMBER: M 3038-3

STR. #	GRID # SQUARE #	TYPE C, A	STRUCTURE F, B, C, M, N	LENGTH MICRONS	WIDTH MICRONS	CONFIRMATION MORPH.	CONFIRMATION SAED.	CONFIRMATION EDS.
61		C	F	0.5	0.02	✓	✓	
62		C	F	0.5	0.02	✓	✓	
63		C	F	1.8	0.1	✓	✓	
64		C	F	0.5	0.02	✓	✓	
65		C	M	1.8	1.0	✓	✓	
66		C	F	11.0	0.1	✓	✓	
67		C	F	0.7	0.05	✓	✓	
68		C	C	2.4	1.7	✓	✓	
69		C	F	5.5	0.05	✓	✓	
70		C	F	1.8	0.05	✓	✓	P.O.
71	2	C	F	1.5	0.1	✓	✓	
72		C	B	12.5	0.15	✓	✓	
73		C	F	2.0	0.05	✓	✓	
74		C	F	1.6	0.05	✓	✓	
75		C	F	1.8	0.05	✓	✓	
76		C	F	0.8	0.02	✓	✓	
77		C	F	0.5	0.1	✓	✓	
78		C	F	1.6	0.05	✓	✓	
79		C	B	1.8	0.2	✓	✓	
80	3	C	F	0.8	0.05	✓	✓	P.O.
81		C	F	5.4	0.05	✓	✓	
82		C	B	2.5	0.2	✓	✓	
83		C	M	6.1	0.5	✓	✓	
84		C	F	1.6	0.05	✓	✓	
85		C	F	1.4	0.02	✓	✓	
86		C	F	1.5	0.1	✓	✓	
87		C	F	5.5	0.05	✓	✓	
88	4	C	F	5.0	0.05	✓	✓	
89		C	F	1.8	0.05	✓	✓	
90		C	M	2.2	1.8	✓	✓	P.O.

CLIENT: Law Assoc / ARL

PAGE # 515

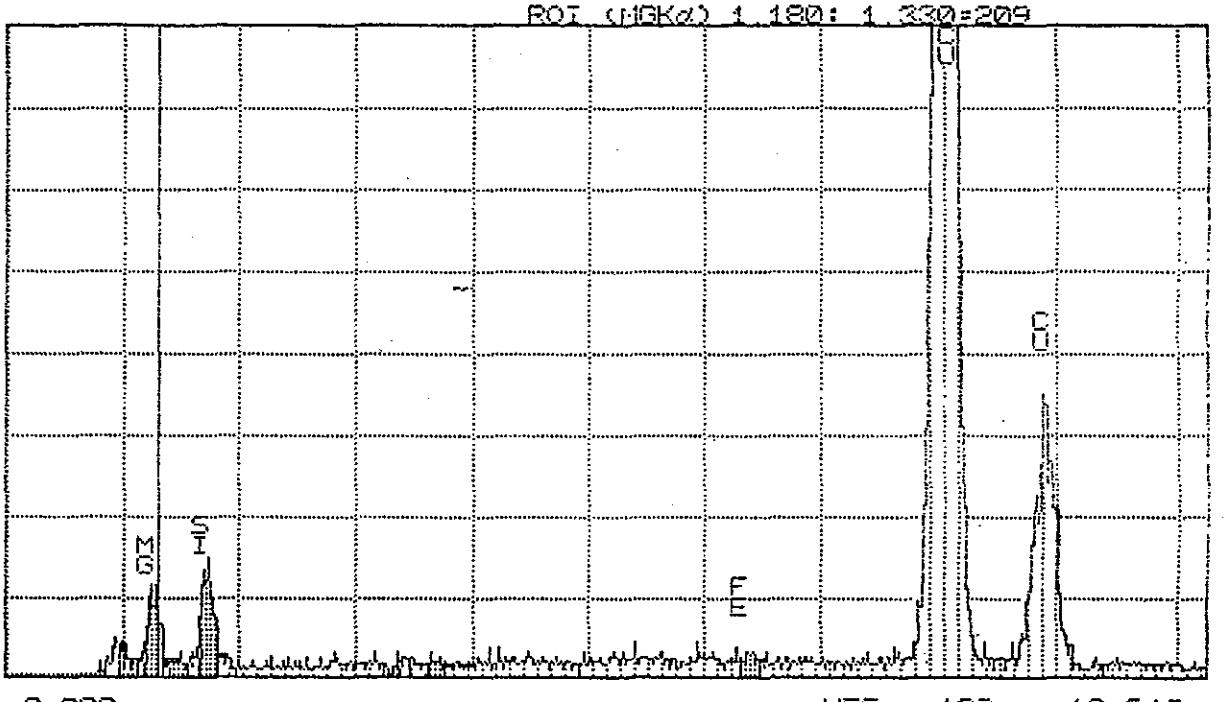
MAS JOB NUMBER: M 3038-3

STR. #	GRID # SQUARE #	TYPE C, A	STRUCTURE F, B, C, M, N	LENGTH MICRONS	WIDTH MICRONS	CONFIRMATION MORPH.	SAED.	EDS.
91		C	F	1.7	0.02	✓	✓	
92		C	F	1.6	0.05	✓	✓	
93		C	F	0.8	0.02	✓	✓	
94		C	F	24.0	0.1	✓	✓	
95		C	B	2.5	0.1	✓	✓	
96		C	F	0.5	0.1	✓	✓	
97		C	M	4.0	2.3	✓	✓	
98		C	F	2.2	0.05	✓	✓	
99		C	F	4.0	0.05	✓	✓	
100		C	F	1.5	0.1	✓	✓	P.O.
101		C	F	0.6	0.02	✓	✓	

MATERIALS ANALYTICAL SERVICES FRI 14-SEP-90 08:54

Cursor: 1.310KeV = 12 ROI (SiKα) 1.660: 1.810=259

ROI (MgKα) 1.180: 1.330=209



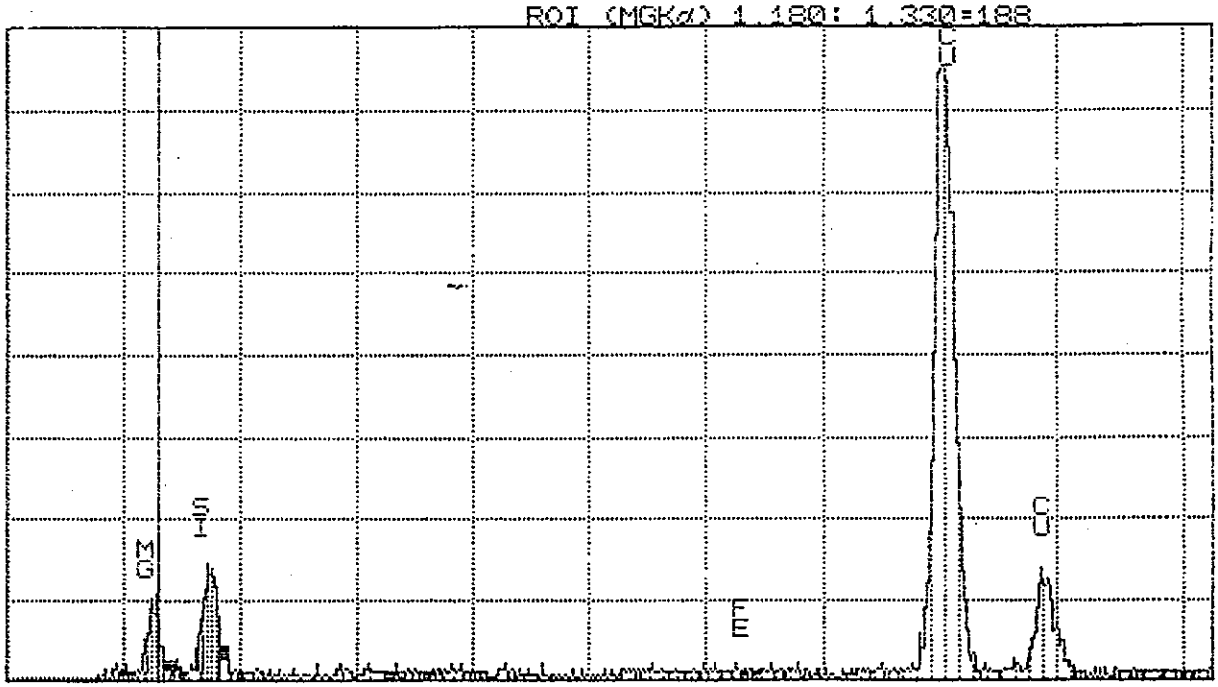
0.000 VFS = 128 10.240

31 M3038-3, CHRYSOTILE

MATERIALS ANALYTICAL SERVICES FRI 14-SEP-90 08:45

Cursor: 1.310KeV = 15 ROI (SIKα) 1.660: 1.810=273

ROI (MGKα) 1.180: 1.330=188



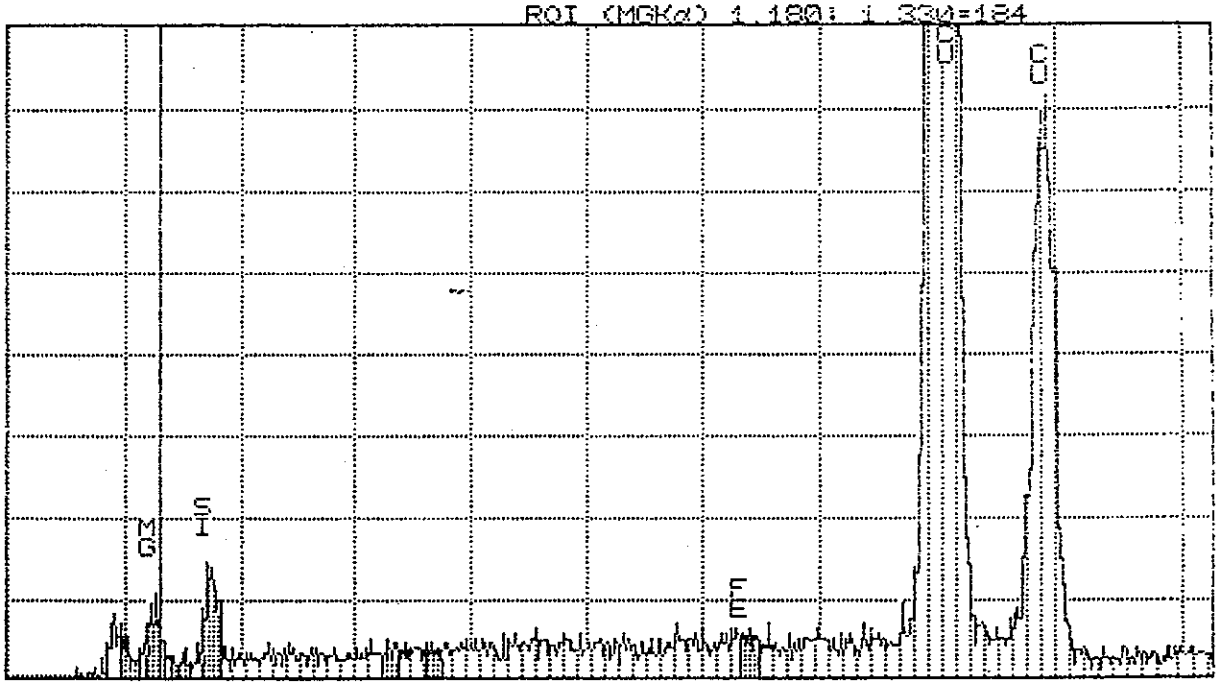
0.000 VFS = 128 10.240

22 M3038-3, CHRYSOTILE

MATERIALS ANALYTICAL SERVICES . FRI 14-SEP-90 08:30

Cursor: 1.310KeV = 10 ROI (SIKα) 1.660: 1.810=259

ROI (MGKα) 1.180: 1.330=184



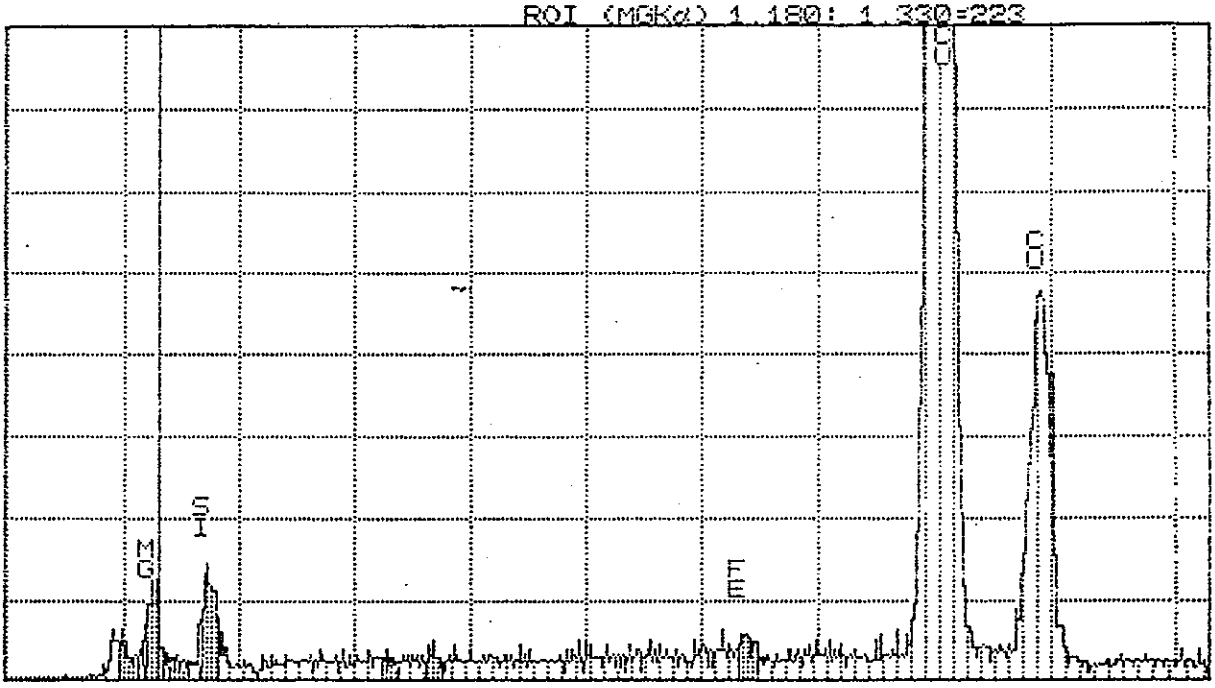
0.000 VFS = 128 10.240

54 M3038-3, CHRYSOTILE

MATERIALS ANALYTICAL SERVICES FRI 14-SEP-90 08:17

Cursor: 1.310KeV = 10 ROI (SIKα) 1.660: 1.810=255

ROI (MGKα) 1.180: 1.330=223



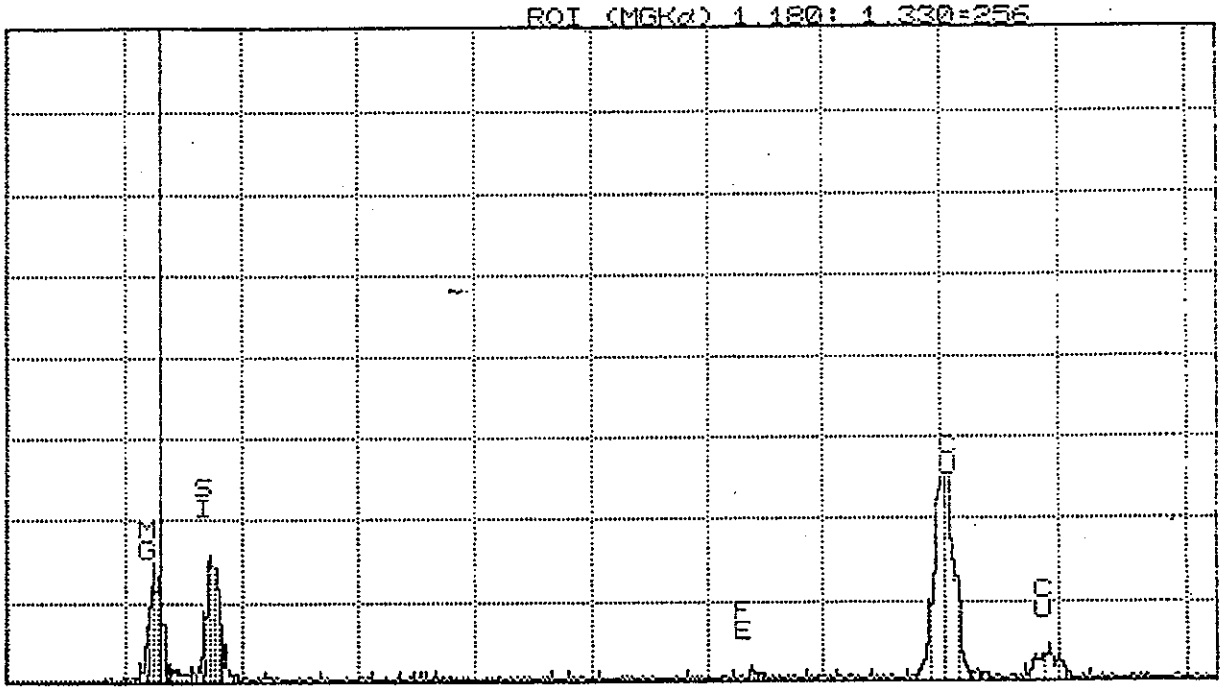
0.000 VFS = 128 10.240

35 M3038-3, CHRYSOTILE

MATERIALS ANALYTICAL SERVICES FRI 14-SEP-90 08:12

Cursor: 1.310keV = 11 ROI (SIKα) 1.660: 1.810=295

ROI (MGKα) 1.180: 1.330=256



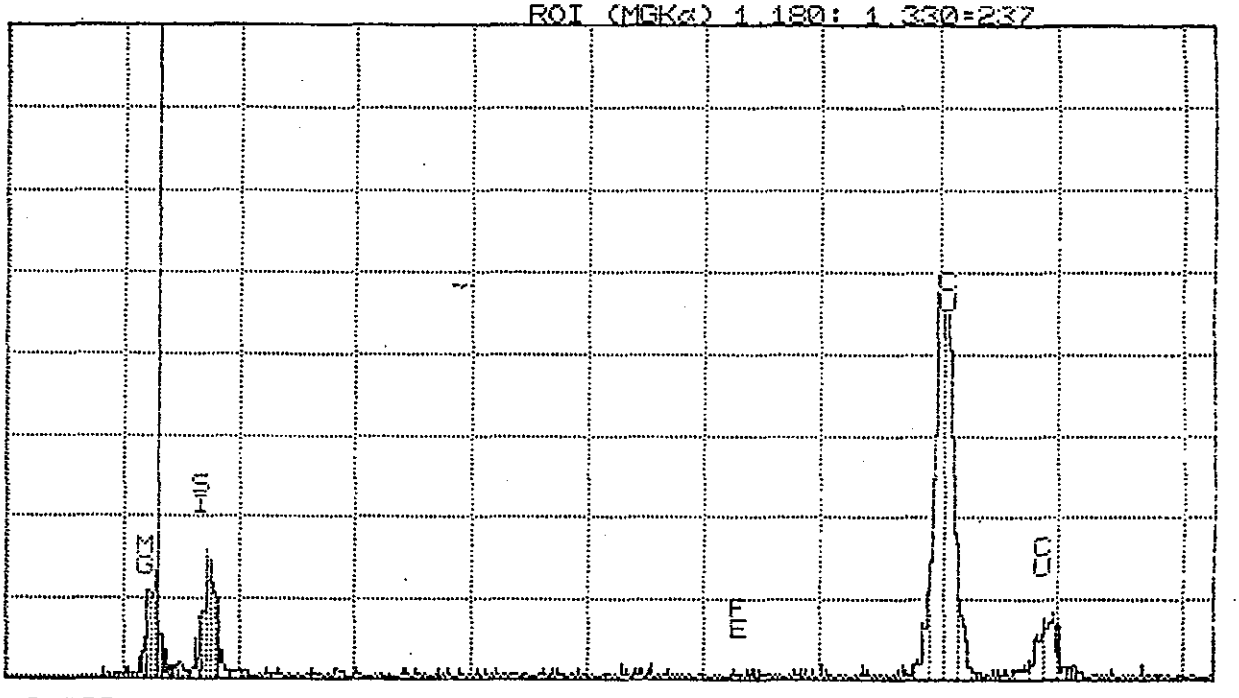
0.000 VFS = 128 10.240

9 M3038-3, CHRYSOTILE

MATERIALS ANALYTICAL SERVICES FRI 14-SEP-90 08:01

Cursor: 1.310keV = 13 ROI (SIKα) 1.660: 1.810=267

ROI (MGKα) 1.180: 1.330=237



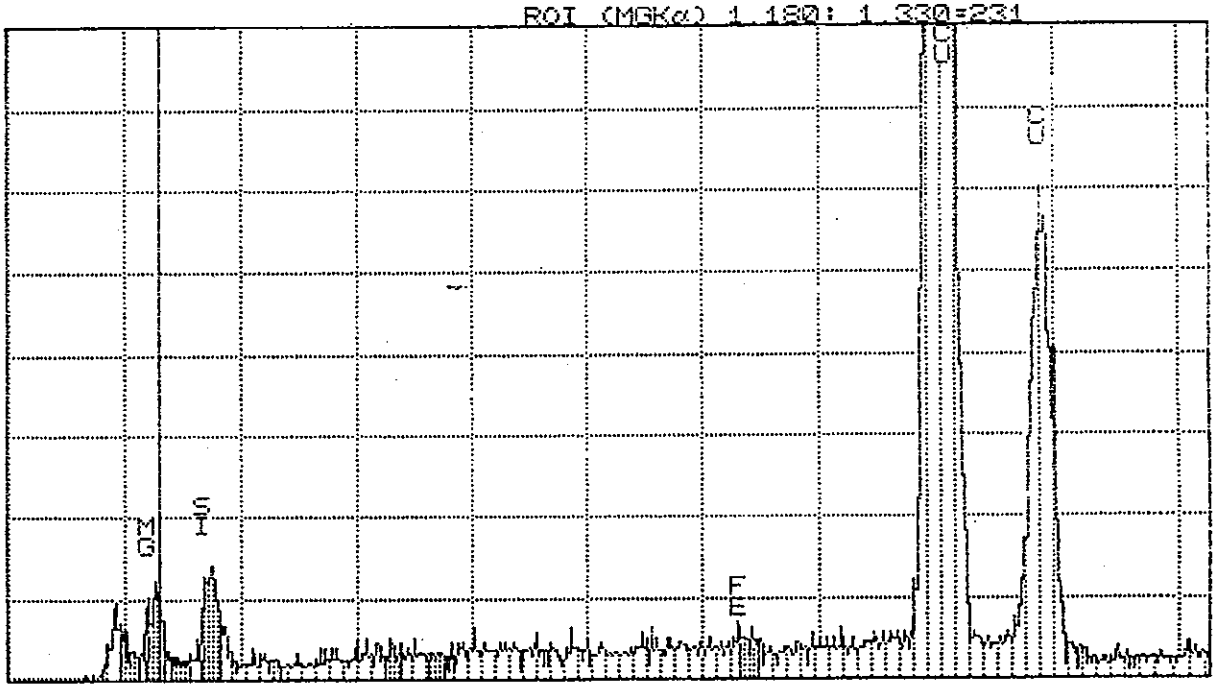
0.000 VFS = 128 10.240

9 M3038-3, CHRYSOTILE

MATERIALS ANALYTICAL SERVICES FRI 14-SEP-90 07:56

Cursor: 1.310KeV = 11 ROI (SIKα) 1.660: 1.810=278

ROI (MGKα) 1.180: 1.330=231



0.000 VFS = 128 10.240

27 M3038-3, CHRYSOTILE